



## **Diseases of the Antrum.**

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The pathology of the antrum of Highmore, is a subject of importance to the dental practitioner. The frequency of disease in this sinus is much greater than is generally conceded by some late writers on the subject.

Empyæmia of the antrum may result in pyæmia with all its sequences; purulent pneumonia, pulmonary abscess and other kindred disorders, have been traced to it. It is an established fact that new growths very often accompany chronic cases of empyæmia, and even though they be benign, they are apt to become malignant, through the continuous irritation to which they are subjected.

The principal authorities agree that fully eighty per cent. of the cases of disease in this sinus, are due to diseases of the teeth or their alveoli, therefore the responsibility of the dentist as to proper diagnosis and treatment is a serious one.

He has better and more frequent opportunities than the physician for discovering these conditions at their commencement, and he should also be better qualified to treat them so far as their dental aspect is concerned.

If the nasal cavity is involved or new growths be present, the case should immediately be referred to a physician or surgeon, who will be better prepared than we, to care for that part of it.

### **Development and Function of the Antrum.**

Before considering the pathology of the antrum, it is necessary to have some knowledge of its anatomy, and the purpose which it serves in the human economy. This is the only accessory cavity of the nose which is formed during foetal life. Its development begins at the fourth month as a pouch on the outer wall of the anterior nasal capsule, which as growth progresses becomes invaginated.

From birth to puberty its increase is slow, but at the latter time, it enlarges rapidly at the expense of the surrounding osseous tissue, as

well as by the growth of the facial bones themselves. From this time, it continues to grow so that in the aged, the walls of the cavity are often of extreme tenuity, and the roots of all the upper teeth will sometimes be found penetrating its floor.

This sinus as well as the other accessory cavities of the nose, serves several purposes. It adds resonance to the voice and probably tends to break the force of any concussion, which, if the bones were solid, would be more easily conveyed to the base of the brain. Its size bears a relation to the facial angle, probably for the purpose of balancing the head; for while in the white races it is large, in the lower types, as the negro, it is much smaller.

**Anatomy  
of the Region  
of the Antrum.**

The antrum is situated in the body of the superior maxilla. Its walls have four aspects, viz— anterior, to the cheek; superior, to the orbit; nasal, to the nose and posterior, to the zygomatic fossa.

The floor of the cavity is usually above the position of the molar and bicuspid teeth. The anterior wall is the one generally removed in operations for new growths. On it is situated the canine eminence, just behind which is the canine fossa and from whence it is usual to open into the antrum, if the dental arch be complete. Above this fossa is the infra-orbital foramen for the passage of the superior maxillary nerve and infra-orbital artery. In operating on this wall, the attachments of the numerous facial muscles must not be forgotten. Through the substance of the anterior wall run the anterior dental canals for the passage of arteries and nerves to the two incisors, cuspid and first bicuspid teeth. The posterior wall is convex and bulges into the zygomatic fossa. In it are several small foramina leading to the dental canals which transmit the posterior dental branches of the superior maxillary nerve and the superior dental branches of the internal maxillary artery. Lower down is the tuberosity by which it is connected to the palate bone, and, along the inner edge of this surface is a groove which with the perpendicular plate of the palate bone forms the posterior palatine canal for the passage of the descending palatine nerve and artery. The superior wall slopes downward and outward, forming the floor of the orbit. In this occurs the infra-orbital canal for the passage of the superior maxillary nerve and infra-orbital artery. It commences as a groove which rapidly becomes a canal terminating on the anterior wall as the infra-orbital foramen, just below the edge of the orbit. This passage near its termination gives off the canals spoken of as running through the substance of the anterior wall. The infra-orbital canal often appears as a thick ridge of bone when seen from the antral aspect of the superior wall. It may be here observed that the superior wall, on its

inner side, is connected with the lachrymal, ethmoid and palate bones. On the outer side it forms one of the margins of the spheno-maxillary fissure at the back of the orbit. On the internal or nasal wall the principal point of interest is the orifice (or orifices as there are often more than one) of the antrum, circumscribed by plates from the ethmoid, palate and inferior turbinated bones, and by the lining membrane, to about the size of a crow quill. The presence of a large antral orifice predisposes to disease of the sinus. This opening is high up on the internal wall so that pus cannot escape through it when the head is upright, unless the cavity be nearly full. On the nasal side of the wall is seen a depression of a curvilinear shape extending forward and upward under the middle of the turbinated bone. This groove is called the hiatus semilunaris, and into its deepest part open the anterior ethmoid cells and into the antrum sometimes by a common orifice; in some cases, the antrum has a second orifice lower down in the hiatus.

The cavity of the antrum is the largest of the air spaces of the head, and is the one most predisposed to disease. It varies in size in different individuals, and even in the same person the antra are rarely symmetrical. As a rule, its shape is that of a triangular pyramid, the base toward the nose and the apex in the malar bone.

Thin osseous plates are often found projecting into the antrum from the several walls, which with the roots of the teeth penetrating its floor form septa, or pockets, that add very much to the difficulty of treating it when diseased. The mucous membrane lining this sinus is continuous through the orifice with that of the nose and, as in the respiratory region of the latter, it is columnar and ciliated. Though continuous with the nasal, the antral mucous membrane differs from it in being much paler and thinner. Its surface is sparingly covered with racemose mucous glands.

**Etiology  
and  
Symptomatology.**

The diseases of teeth and their alveoli are responsible for three-quarters of the cases of empyaema. Of these the commonest source of the infection is, of course, necrosis of the pulp, followed by alveolar abscess, which later breaks into the antrum and keeps up a continuous flow of pus into that cavity. Until the sinus be filled, there is usually no escape for this purulent matter, as the ciliae which normally convey the secretions of the cavity through the orifice do not thus dispose of the products of inflammation. The whole mucous lining is gradually inflamed, as the quantity of matter increases, and itself commences to excrete pus. Should the inflammation and consequent swelling be sufficient to close the orifice, we have the sequential complications, the symptoms of which are described below, but if the

orifice remains patulous, a discharge commences through the nose which continues during the patient's life if the disease is not controlled.

Apart from the cases of dental origin, perhaps the most frequent cause of antral disease is rhinitis which infects the cavity by extension from the nose. This is probably the origin of those cases which are reported in children, in whom the roots of the erupted teeth are not in proximity to the antrum. A fungus, the "*Aspergillus fumigatus*," has caused empyaema, as have numerous varieties of bacteria, such as the streptococcus of erysipelas, the diplococcus of pneumonia, the streptococcus pyogenes and others, which have obtained access to the cavity. It has originated from the osseous lesions of syphilis or tuberculosis and by gonorrhoeal conjunctivitis propagated through the lachrymal duct; and also from the presence of foreign bodies in the sinus. Of late years this disease in a few cases has formed an unpleasant *finale* to the *grippe*.

**Complications  
Sequential to  
Antral Diseases.**

Having now considered the causes exterior to the antrum which have induced diseases of that cavity, let us consider some of the complications and secondary effects which may be produced by the disease itself upon surrounding structures and which may react on the antrum. To us the most important is the effect on the teeth in the vicinity. We know that often there are one or more roots protruding into the sinus, and that the ends of all the upper teeth, from the third molar to the central incisor, may penetrate either its floor or anterior wall where the cavity is large. These roots are covered by a more or less thick coating of bone and by the mucous membrane lining of the cavity itself. When from some cause the antrum is inflamed, pus is formed which naturally covers the floor of the cavity first. The mucous membrane on which it rests is very soon inflamed, the osseous tissue beneath it becomes necrosed, and absorbed to a certain extent, and the nerves and vessels of the teeth in that locality are exposed, after continuous irritation, to a bath of pus which must destroy their vitality. If upper teeth are quite sound orally, but are reported to be the seat of neuralgia, examine carefully for empyaema before giving the diagnosis, which is the *dernier resort* of the profession, namely—pulp stones. Long standing empyaema is sometimes accompanied by quite extensive necrosis of the surrounding osseous tissue, especially the alveolar process.

Among other complications are disease of the mucous membrane of the nasal cavity by extension through the antral orifice; by extension into the orbit through the frontal sinus; affection of the anterior ethmoid cells through the proximity of their orifice with that of the antrum. Profuse lachrymation is sometimes produced by compression of the naso-

lachrymal apparatus. Neuralgia, reflex and otherwise, is a frequent accompaniment. Polypoid degeneration or true polypi are nearly always present in the antrum and nose. The middle turbinated bone becomes hypertrophied, inflamed and in places may be bare. Various diseases of the respiratory organs have followed this disorder.

<b>Diagnostic</b> <b>Symptoms in</b> <b>Antral Disease.</b>	The symptoms connected with empyaemia are divided by Semon, of London, into two classes. In the first, there is a free discharge into the nasal cavity (when the position of the head enables it to pass).
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In this class the symptoms are as follows: A constant discharge from the nose, on the side affected which, on examination, is seen to come from the concavity of the middle turbinated bone. This discharge is noticed particularly in the morning, if the patient has been sleeping on the sound side. It is said to be sero-mucous if the antrum alone is affected, and muco-purulent if the teeth be involved. The middle turbinated is often hypertrophied and inflamed, the bare bones showing in places. Nasal blenorrrhea is generally present. Cacosmia, or an unpleasant odor, noticed by the patients themselves, is an important symptom. Neuralgia is often present, but is not so severe nor so continuous as in the second class. A case has been reported of a suppurating pouch on the wall of the middle turbinated, simulating empyaema, but on operation the sinus was found to be healthy.

In the second class, the antral orifice has become closed; usually by inflammation and swelling of its lining membrane. In such cases, there is no nasal discharge, as the pus is confined in the cavity of the antrum until it has formed an outlet through the weakest wall. The symptoms are as follows: There is first a feeling of fullness and tension, and then, as the cavity becomes fuller, the walls begin to bulge outward; the thinnest first. The internal wall is forced so far into the nasal cavity as to prevent breathing through that side. The hard palate usually concave, becomes convex on the side affected. The orbital wall by its pressure, partially forces the eye out of its socket, or else closes it up altogether, with profuse lachrymation and discoloration of the lower eyelid. The face over the anterior wall is generally much swelled. Neuralgia is continuous and severe, infra-orbital, supra-orbital and dental. The teeth are very tender to pressure in a severe case. As soon as the pus has found an outlet, most of these symptoms abate, and without treatment the case becomes chronic.

In the first class, any continuous discharge from the region of the inferior turbinated accompanied by cacosmia, is quite sufficient reason for making an exploratory opening into the antrum. In the second class of course immediate operation is indicated.

**Diagnosis  
by  
Trans-Illumination.**

In the diagnosis of empyaemia, trans-illumination has been strongly advocated by some writers, and denounced as useless by others. It is effected as follows: The patient is put in a dark room and a small electric lamp inserted into the mouth. It is then noted whether both antra are equally translucent. The patient also is able to notice whether the impression made on his eyes through the superior wall of the antrum is equally strong on both sides. If one be darker than the other, the presence of pus is inferred. Those who oppose this method say that the light rays projected into the sinus originate not only from the mouth, but also, indirectly, from the nose. The antrum thus illuminated from two directions appears translucent whether it be so or not. It should also be remembered that the walls of the two antra may not be similar as to thickness; or that both may be diseased.

Although bilateral empyaemia has been thought a rare condition, a number of cases are recently reported, and it is suggested that many cases have been attributed to nasal disease in the past where the antra were the real seats of disease. It is therefore not often possible to establish a negative diagnosis by this means.

**Methods of  
Treatment in  
Antral Disease.**

It having been decided that empyaemia is present, it becomes necessary to make an opening for drainage, through which the cavity is to be treated. The next step is to determine where to open. Various writers recommend different places; some using the antral orifice, others making an opening through the inferior or middle meatus.

If the cavity is to be from the mouth, which dentists prefer, a decayed first or second molar, or second bicuspid, should be extracted, and the opening thus obtained continued into the antrum. Should the teeth be sound, it can be made from the canine fossa. As to the size of the opening, "doctors disagree," some making it the size of a pencil and others so large that "perfect ocular and digital examination may be afforded." Although a mallet and chisel is highly recommended for performing this operation, as being very speedy, yet a dentist will prefer a bone bur in the engine for the purpose of effecting an opening from the mouth; there is not so much chance of splintering the surrounding bone; and it leaves a smooth edge.

If the opening is to be through the nasal wall, a small curved trochar is used, although there is some danger of splintering the bone. Perhaps the best instrument for the purpose is the actual cautery. The parts may be anaesthetised by a pledget of cotton soaked in a twenty

per cent. cocaine solution, and placed against the wall to be operated on. A safer way is to administer nitrous oxide gas, which is very well suited for small operations of this kind.

**Construction  
of  
Drainage Tubes.**

The opening having been made, we must consider how to maintain it, and how to prevent debris from being forced through it. A roll of antiseptic gauze of the proper size may be inserted into the fistula, and will serve the double purpose of absorbing the secretions and maintaining the opening. A better way, and the one most generally practiced, is to construct a gold or silver tube of the proper size. This should have side perforations near its upper end to facilitate the drainage of pus in case the end of the tube should extend above the antral floor. If these perforations are made the tube must be moved a little every day to prevent granulations penetrating them and thus preventing its removal. The tube can be held in place best by a tight clasp to a neighboring tooth, or by the ordinary suction plate. To ascertain the proper relative position of the tube and its attachment, put the two in place and take a plaster impression. On the model the two may easily be soldered or connected together and will be in correct relation, the one to the other.

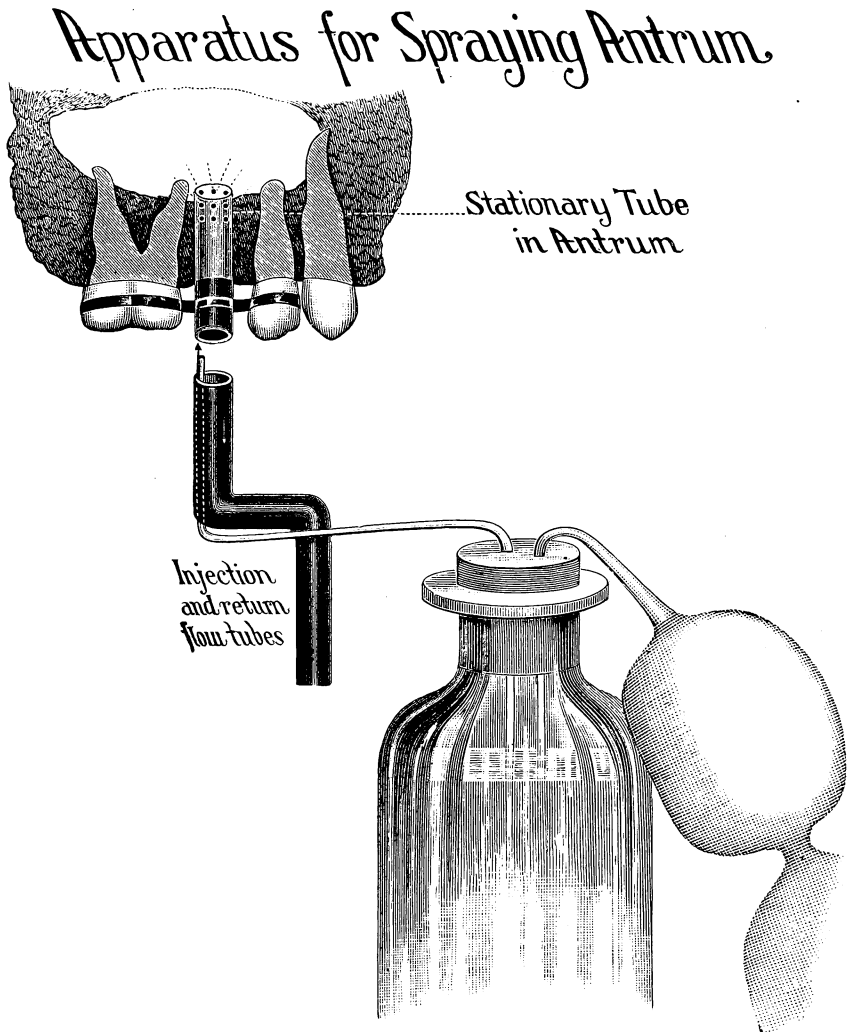
Through this tube, the cavity is to be syringed daily or oftener. A cork fitted to the end will prevent the constant drainage of pus into the mouth. The patient must be warned to keep the clasped tooth scrupulously clean, as otherwise it will be much injured.

The writer would suggest the use of a small apparatus which can be made in any laboratory, and is rather better than the ordinary method of introducing medication to the antral cavity by means of a syringe. It insures thorough irrigation and provides for the return flow being carried out of the patient's mouth to a receptacle. The usual manner of injecting necessitates the escape of the fluid through the antral orifice into the nasal cavity; and thence, very often, through the mouth by the posterior walls. Any one who has experienced this will know how disagreeable it is, and in addition, if it is wished to examine the pus for disease germs, the fact of the fluid having traversed the walls and mouth adds an element of uncertainty as to the original seat of the bacteria examined.

**The Author's  
Drainage  
Apparatus**

The apparatus advocated is based on the principle of the double-current catheter, and is constructed as follows: Two tubes are made, one about the diameter of the little finger, the other telescoping into it closely, but easily. The first tube is to remain in the mouth during the course of treatment, and is held in place by clasps or a plate; it serves the purpose of keeping the fistula clear

and permits drainage. The other part of the apparatus is put into place when treating. On the inside of the second tube, which is for the return flow, is soldered another of about one-eighth in diameter, longer



than the other and projecting from both ends of it; through the latter tube the injection is made. The upper end of the injection tube may be tapered to throw a fine jet, but preferably should be closed and finely per-



forated to throw a spray. The two lower ends are connected by rubber tubing, the first with the receptacle and the other with the bottle containing the antiseptic to be used from which it is forced by the ordinary atomizer bellows. In this way a large quantity of injection fluid (or powder) may be sprayed into the antrum with little inconvenience to the patient and the discharge may easily be compared with that of a previous irrigation. Both of the larger tubes should have perforations on their upper sides to facilitate drainage.

<b>Resistance to Treatment.</b>	Antral empyaemia unless taken at its commencement is very rebellious to treatment, often requiring years before a cure is effected; even then, many cases are discharged as cured, which become as bad as ever when the treatment is discontinued.
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When we consider the shape of the antrum and its lining membrane, even though there be septa along its walls forming comparatively inaccessible pockets, it seems unaccountable that the disease should not yield to treatment in as short a time as that of any other inflamed surface; in fact, it should yield sooner, for the antrum is fairly well protected from the invasion of fresh pyogenic bacteria. There must be some cause for its resistance to treatment other than the simple inflammation of the lining membrane.

Osseous lesions caused by syphilis or tuberculosis may be one, new growths may be another, but the most probable and frequent cause must be putrefaction of the pulps of teeth often sound orally, whose roots penetrate the floor of the cavity, and which have died from the exposure of their nerves and blood vessels to the products of antral inflammation. No antiseptic will penetrate the foramina of these teeth because of their small size, but they are not too small to permit the egress of bacteria which have found a most favorable breeding ground in the pulp chamber and canals, and which are quite ready to establish secondary infection of the antral cavity, as soon as the discontinuance of its medication enables them to do so.

The likelihood of osseous lesions from syphilis or phthisis may be inferred from the history given by the patient or his physician. In such a case the treatment must be systemic as well as local. New growths in both the antral and nasal cavities as a cause or complication of empyaemia will be spoken of later.

The possibilities of one or more apparently sound teeth being dead should be remembered and the usual tests made to ascertain the fact. Should they be found, they must be opened, thoroughly treated and filled to the ends of the roots, before the cure of the antral disease is attempted.

**Remedies  
to be  
Employed.**

The usual mode of treatment is by the injection of fluid antiseptics (powders are sometimes used) into the cavity by the fistula. The modus operandi is to first remove as much pus as possible by injections of lukewarm water and then to irrigate thoroughly with the antiseptic to be employed. A number of the latter are recommended, as hydrogen peroxide, followed by glycozone, creolin solution, solution of pyoktanin, Fowler's solution, and cantharidate of collodion; another drug which is highly spoken of is aluminum acetico tartaratum, in a one to five solution; permanganate of potassium in a weak solution is also very efficient. Among the powders to be insufflated by a powder blower are iodol, iodoform, aristol, etc. Where the fistula is from the oral cavity a late writer recommends that the patient first rinse out the mouth thoroughly with a strong solution of boracic acid, and then, filling the mouth with the same, should, by compressing the cheeks, force the liquid through the fistula into the antrum from whence it escapes by the antral orifice. This can be done by the patients themselves and saves trouble.

Another advises plugging the antral cavity with antiseptic gauze. Where the patient objects to a fistula being made, the following may be tried. It is said to have been successful in some cases: Evacuate the cavity by holding head horizontally to the side opposite to the one diseased, several times a day, and keep the nose in an aseptic condition. The prognosis of empyaemia is favorable, although it may give rise to fatal diseases such as those of the respiratory organs. The quantity of pus often finding its way into the stomach is an important factor in the disease of that part also.

**Growths  
Occurring  
In the Antrum.**

The subject of new growths to the average reader may seem rather out of the dental province, and it is, so far as operative treatment is concerned, but we must remember that they are a frequent accompaniment of empyaemia, and should they be or become malignant, their early recognition is a matter of vital importance, for only when taken at their commencement is there a fair chance for preserving the life of the patient. As the dentist is concerned only in the recognition, or at most palliative treatment of new growths, it will not be necessary to enter very extensively into their description and effects. There is no definite knowledge as to the cause of tumors, although there are a number of theories more or less (generally less) supported by facts. The new growths originating in, or invading the antrum, are several in number and include both the benign and malignant species. To the former belong enchondroma, periosteal and endosteal; fibroma, periosteal

and endosteal; osteoma, dentigerous cyst, and nasal polypus. The second class includes the sarcomata, spindle celled, round celled, myeloid, alveolar, fibro, chondro and osteoid; the carcinomata, which include epithelioma, squamous and columnar, and rodent ulcer.

Any of the benign tumors may become malignant if exposed to continued irritation, such as the constant presence of pus, the sharp edge of a broken tooth, or burning with an irritant caustic, as for example nitrate of silver. Non-malignant growths are of the nature of localized hypertrophies of the tissue naturally existing in that part. They are generally encapsuled, and do not infiltrate the surrounding tissues. As a rule they do not affect the patient's health, do not tend to ulcerate nor do they affect the neighboring glands. The more highly developed a tumor is the nearer it approaches normal tissue on microscopical examination, the less is the chance of its being malignant. Benign tumors grow more slowly than do the others, although both have periods of active growth.

**Non-Malignant  
Growths.  
Fibroma.**

Fibroma as found in this locality is dense of structure and frequently lobulated. On section it shows interlacing bundles of fibres. Of the two varieties the periosteal originates in the alveolus and the endosteal from the interior of the bone, as the names imply. The latter form is the more likely of the two to penetrate the antrum. This growth by the pressure which it exerts may cause extensive absorption of the surrounding osseous tissue, but never involves the skin.

**Enchondroma.**

Enchondroma is harder and more tuberous than the fibroma, and often causes great deformity by sending processes into the various cavities of the head, as the nose, orbit and antrum. It is also of two varieties, periosteal and endosteal. This type of tumor generally appears early in life and grows steadily and more rapidly than fibroma, than which it has a much greater tendency to recur. Enchondroma are sometimes partially converted into bone.

**Osteoma.**

The simplest form of this tumor is the condensed hypertrophy due to the presence of a misplaced tooth. Cancellous osteoma has a covering of dense bone of varying thickness. Ivory osteoma is composed of ivory and dense cancellous bone. The osteomata do not tend to recur if removed, and if it can be ascertained by trephining or from the fact that a tooth is missing from the jaw, that a tooth is the cause of the growth, its removal is often all that is necessary, the growth being absorbed.

**Dentigerous  
Cysts.**

Dentigerous cysts form slowly and usually painlessly. In diagnosing see if a tooth be missing or if a retained temporary tooth has prevented the eruption of its successor. The cyst wall is generally dense and is lined with thick vascular membrane through which the tooth projects into the cavity. The removal of the cause of irritation, the tooth, by breaking down a portion of the cyst wall will cause the absorption of the latter. If the cyst has suppurated, further antiseptic treatment is necessary.

**Polypi.**

Nasal polypi spring from the mucous membrane of the nose or antrum. They are soft in consistence, gelatinous and semi-transparent and generally include a few glands. They are well supplied with blood vessels and bleed easily. The usual way of removal is with the ecraseur or snare.

**Malignant  
Growths  
In the Antrum.**

Malignant growths have several characteristics which separate them from the first class. These tumors may be said to grow from their periphery, in contra-distinction to the others which grow from their center; therefore, they are never encapsuled, although they sometimes have that appearance, but always tend to infiltrate the surrounding tissue. One of the surest evidences of malignancy is the infection of the neighboring glands (some of the malignant forms however, such as carcinoma of the superior maxilla rarely affect them). The health of the patient is generally much affected and they lose weight. These tumors tend to recur even when completely removed; they also grow much faster than the benign. They are extremely vascular and bleed easily. If covered by skin, it is at first simply stretched over them, but soon becomes involved and adherent, finally permitting the protrusion of a fungous and often foul-smelling mass which discharges pus and blood freely.

**Epithelioma.**

Squamous celled epithelioma usually commences after the fortieth year. It starts as a warty growth, raised to a varying extent above the surrounding tissue and at the same time grows about as far in, which gives in the typical induration. The growth becomes papillated, and after a varying time tends to break down and ulcerate in the center. Its area increases in this way, breaking down in the center and spreading from the periphery. The progress of the disease is usually accompanied with much pain, and the surrounding parts are infiltrated. The ulcer when fully developed is of an irregular shape and grayish color, devoid of healthy granulations and secreting pus.

Columnar celled epithelioma appears as a papillary tumor of a whit-

ish color, infiltrating the deeper tissues to a varying extent. It originates in the secreting glands. This growth varies much in its clinical course, sometimes existing for years without either attaining any great size, involving the glands or being disseminated; in other cases the course is very rapid. The glands and distant organs are at once affected, the growth fungates and bleeds freely and life is soon destroyed.

**Rodent Ulcer.** Rodent ulcer may appear as early as the fortieth year, but generally later. Typically it commences as a small wart, the center of which ulcerates; the growth of the wart and the spread of the ulceration progresses with about equal rapidity, though the growth is slow, compared with that of epithelioma. When fully developed, it appears as a flattened growth of an irregular shape, with grey, smooth and glazed base, devoid of healthy granulations, discharging watery pus and cicatrized here and there. The edges of this ulcer are raised above the level of the tumor and the surrounding parts. It never causes infection of the glands. Rodent ulcer progresses slowly until it reaches bone, which is excavated with great rapidity. It generally commences at the inner angle of the eye or on the side of the nose.

**Sarcomata.** The microscopic appearance of the sarcomata varies indefinitely in shape, size and outline. On section, the sarcomas that are unmixed with other tissue may be soft, brainlike and pulpy, readily breaking down on pressure. Frequently they are of a red and fleshy appearance; in any case they may be more or less infiltrated with blood. In one respect they differ from all other tumors, namely, in the homogeneous appearance of their cut section, for in a typical sarcoma there is no appearance of fibrillation or lobulation to be found. These tumors may appear to be encapsuled, although they are not really so. To describe the appearance of each would take up too much space. In the dental treatment of tumors, the malignant ones especially, put the mouth in a healthy condition as far as possible, removing sharp edges of teeth and refer at once to a surgeon. The prognosis of benign tumors is favorable, but it is distinctly not so in the malignant ones.

**Foreign Bodies in the Antrum.** The presence of a foreign substance in the antrum always sets up inflammation, more or less severe, according as to whether it is of an irritating character or not; mechanical or septic. As an instance of the first, the end of a trocar broken off during an exploration, or the fragments of bone splintered when making a fistula through the nasal wall, will both act as mechanical irritants. The end of the root of a molar tooth forced through the process into the an-

trum in an effort to extract it, is a good instance of a septic irritant, as in the two following cases recently reported by French physicians. In the first, a dentist plugged up the socket of an extracted tooth with cotton which had disappeared when he next examined it. Some time later an operation became necessary, when the surgeon took out a ball of cotton as large as an orange from the antrum. In another case, the operator put lint into an artificial fistula to prevent its closing. The lint disappeared and the dentist thought it had been lost. So it had, but into the antrum. After suffering from empyaemia for six years, this person underwent an operation when the cause of the trouble was found and removed. Such accidents, if they deserve the name, are almost always due to the carelessness of the operator, and will not occur to those having any knowledge of the parts or who use ordinary care. The foreign body, if it is not too large, will eventually escape through the orifice, but if it does not, an operation is necessary.

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### **Pental.**

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By DR. J. C. BOGUE, Brunswick, Mo.

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Chloroform, ether, and  $N_2O$  have, for many years, been used to render surgical operations painless, but to many each has its objections. To me these are largely overcome by pental, and I wonder that our literature contains so little concerning this efficient general anesthetic. Cocaine and eucaïne preparations in dental surgery have largely supplemented general anesthesia, but there are cases where one feels the need of the general anesthetic.

Pental  $C_6H_{10}$  is a colorless liquid of low specific gravity, about that of ether; boils at  $102^\circ F.$ ; burns with an illuminating flame; insoluble in water but miscible in all proportions with alcohol, chloroform or ether. It is highly inflammable, and must be kept from possible ignition; is exceedingly volatile, but does not decompose. It should be kept well sealed and in a cool place to prevent evaporation. It comes in bottles holding about five drachms each and may be obtained of Lehn & Fink, 128 William Street, New York.

**Directions for  
Administering  
Pental.**

The manner of administration is similar to chloroform, using a gag or mouth prop as with nitrous oxide, and for similar reasons. Any of the various inhalers used for chloroform, napkins, cones, etc. or the rubber plaster bowl with sponge on inside

answers fairly well.

Plenty of air should be allowed at first. I now use the Junkers Inhaler, its use saving a large per cent. of the anesthetic, besides giving a definite idea of the amount consumed, varying from one-half to two drachms in my hands. In using the Junkers Inhaler use the bulb sparingly at first—not at all for nervous patients or children—until they have become accustomed to the face piece and breathing through it.

Before beginning to give an anesthetic much can and should be done by suggestions. Calm any fear that the patient may have by assuring him of the safety of the agent, and explaining the delightful sensations which he will probably experience during the administration. He should be instructed to breathe slowly and naturally, and to make deep and full expirations and inspirations. At first leave the air valve entirely open. After the patient begins to breathe nicely and you notice the first effects of the anesthesia, compress the bulb to correspond to the respirations. Do not hurry the inhalation at first, as most authorities consider the first inhalations the most dangerous when using pental. Use plenty of air. It requires from one to three minutes to obtain the desired effect.

**Physiological  
Effects of  
Pental.**

A few observations as to physiological effects, safety, may be noted. "H. Ruth," as quoted by Dudley Buxton, M.D., B.S., anesthetist and lecturer in University College Hospital, London, in *Annals of Universal Medical Science*, "after many experiments, has come to the conclusion that pental is not a dangerous drug." He admits that caution must be used.

T. E. Constant (April 26, 1894) has made a series of observations regarding the effect produced by inhalations of pental. He affirms that in the majority of cases the drug produces the following phenomena: "Almost immediately after the pental is inhaled there is noticed slight flushing of the face and quickening of the pulse, the increased frequency being unaccompanied by any diminution of the force. The respiration, if quiet at the beginning of the inhalation, becomes deep and rapid when the inhaler is turned on full, but becomes quieter when turned off. The eyes, if closed, open as the patient becomes anesthetized, and have a fixed, staring look. The conjunctival reflex is rarely lost, although in some cases it disappears after four or five inspirations. In a few instances there is profuse perspiration after about thirty seconds. The

duration of the anesthesia produced is, on the average, about one and one-half minutes, but varies greatly with the patient and the character of the respiration, never being less than one nor more than three. There is no muscular relaxation." This author has observed dangerous symptoms. He, however, for short operations, prefers the drug to  $N_2O$ , or  $N_2O$  and ether.

Phillip (Jan. 1895) reports the history of two hundred cases of narcosis by pental among children, the operations lasting an hour or longer. Pental exercises no bad influences on the action of the heart, and secondary accidents following the administration are not observed. He used the Heller's mask. "Sleep followed without excitement, and in one case only was cyanosis noted. The awakening was gradual, but ordinarily required several minutes after removing the mask. Nausea, vomiting and vertigo were not observed, nor is it necessary to diet a patient, as it may be taken after a meal without bad effects."

C. S. Velez (Feb. 1895) has used pental in one hundred and eight cases in dental surgery, mostly with satisfactory results. "Sleep was produced in about one minute. One man aged thirty-eight, was submitted to anesthesia three times in thirty minutes; no secondary effects were noticed in his case, except somnolence for balance of the day. The principal advantage of pental is that tolerance is not established, but the effect increases at each application." Usually consciousness is not entirely lost, the sleep is tranquil, the face retains its natural color. Velez is of the opinion that it will replace chloroform and ether with advantage, in operations of short duration.

P. T. Ferdorff has experimented with pental in general surgical anesthesia. He says the duration is from one to two minutes, but may be prolonged from two to five minutes. "In about fifty per cent. of the cases the rapid pulse is not modified, but otherwise the pulsations become more frequent and some times there is orthymia." It is principally during the first minute that disturbances of the circulation show themselves; it is, therefore, very necessary to be circumspect during the primary inhalations, and not to have recourse to the concentrated vapor of pental, except after the first minute, when the action of the heart will have become regular. "Two peculiar effects of the drug are important. a. Analgesia occurs while consciousness is still retained. b. The patient is cognizant of what is being said and done by the operator but does not feel the pain." Most authorities, however, say that an operation should not be performed before loss of consciousness, and the author last quoted says the majority of accidents that happen are due to incomplete anesthetization.

From ten to fifteen minutes after the first administration of the drug



it may again be used. The patient, as with chloroform, should assume the recumbent position while taking pental, but in either case, may be raised for the operation.

Dr. Von Mering expresses himself (in 1891) as being convinced that pental, chemically pure, is the safest and best anesthetic of which we have any knowledge for short operations. It was not before this date (1891) that the chemically pure article could be obtained. That used in the forties contained fusil oil; hence it fell into disrepute, the pental of that date being quite different from the present article.

Dr. E. D. Eddy, in a paper read before the Midwinter Fair Dental Congress, states that pental is more likely to produce danger signals than any other substance heretofore used, reaching this conclusion from his own experiments with pental, gas, chloroform, and ether.

Dr. Samuel O. L. Potter, than whom in America there is no better authority on *materia medica*, says in the last edition of his work: "Pental is an efficient anesthetic equal to nitrous oxide in the rapidity of action and safety, but superior thereto in its more prolonged action and its having no unpleasant after effects. Compared with  $N_2O$  it can be continued for a longer time, is safer and freer from after-effects of unpleasant character.

Dr. Eddy (ITEMS OF INTEREST, Nov., 1894) nicely sums up the advantages of pental: "1. Certainty of painless operation. 2. Speed. 3. The immediate and complete recovery of the patient. 4. Simplicity." After an intelligent use of it most of us will come to the same conclusions.



## A Method of Procuring Accuracy of Adaption in Crown and Bridge Work.

By H. J. GOSLEE, D.D.S., Chicago.

Much has been said and written upon the subject of crown and bridge work and the various methods of procedure and construction, each of which may and have possessed virtues and merits, faults and demerits, but no apology is made in presenting this brief outline of a method, the cardinal principle of which involves one of the main and essential elements of all successful efforts in the line of dental prosthesis, i. e., accuracy of occlusion.

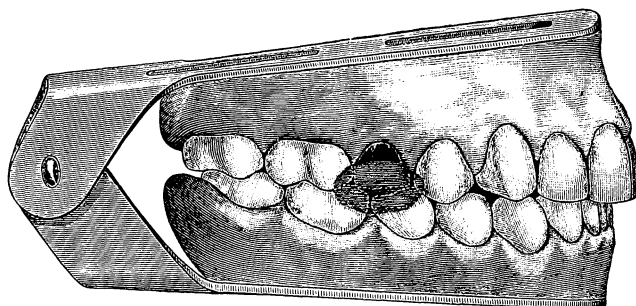


FIG. 1.

To obtain this accuracy requires the highest degree of painstaking care and skill, manifested and utilized at all times in conjunction with one of nature's greatest endowments—good judgment.

In seeking to accomplish the best results our aim should be to reproduce or improve upon the natural condition, in order that the normal function and usefulness may be restored, and in our efforts to obtain this, we are dependent mainly upon our ability to secure as nearly as possible a perfect *fit* and *adaptation*. The accuracy of the fit depends upon the degree of skill and painstaking efforts of the operator, while the adaptation, it may be as justly said, depends solely upon his judgment.

That crown work when skillfully executed and adjusted is a success all are now willing to concede, and that bridge-work would be, were it not too often used indiscriminately and with an utter lack of discretion and judgment, there seems to be no reasonable doubt, for but few will deny that it certainly has its place, and fills it with a very gratifying proportion of satisfaction and comfort when properly and judiciously executed.

The following method is presented with no claim to originality, but with the earnest belief that its practice will ultimately meet the approval of all who are inclined to accomplish the best possible results, irrespective of previous habits and methods, for because of its merits I have abandoned all other systems, both in teaching and in practice.

All reference to the preparation of roots is avoided here, it being my aim simply to outline the comparative ease with which perfect results may be obtained, without the use of the numerous dies and die-plates now upon the market, which I am inclined to think and predict will ultimately be relegated to the archives of the laboratory, being superseded by the better and more accurate method of making a special die for each individual case.

Yet, some may contend that the die-plate has its place, as some also

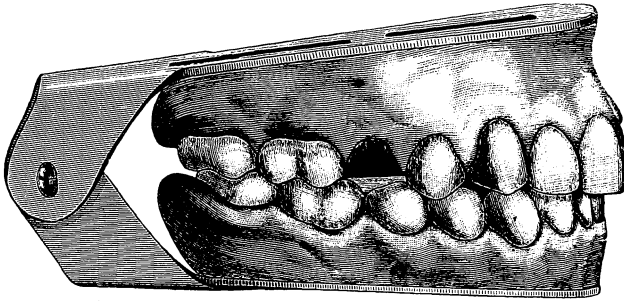


FIG. 2.

do for the ready made gold crowns procurable *ad libitum*, though all must acknowledge that it is scarcely possible to secure a good occlusion in even a majority of cases by the use of a stereotyped die or set of dies.

Of the various dies and die-plates, the Hollingsworth system is perhaps far superior to any, simply because there are a greater variety and a larger selection of well formed cusps from which to choose, and next to that is a new plate recently shown by Dr. Swartz, which was designed by Drs. Prothero and Birkland, and which has a good variety and selection of nicely formed cusps taken directly from natural teeth; nevertheless, irrespective of the number of dies or cusps, all will, I think, agree that it is not possible by such methods to procure a satisfactory occlusion in even average cases; hence the deduction that individual dies must be the only true means of securing accurate results.

**How to Obtain  
Accurate  
Adaptation.**

We will presume that the band has been properly fitted to the root, cut the correct length with due allowance for the cusp, and contoured so as to fill the space, restore the points of contact and make symmetrical, so far as it is concerned, the alignment

of the teeth. The band in position upon the root should then be filled with wax even with its edge. Then proceed to take first the articulating bite in either wax or modeling compound, and then the impression (always in plaster), which, like the bite, should include at least the two approximating teeth on each side of the band. (Fig. 1.)

The taking of the bite should always precede the impression for the obvious reason that the band is and should be removed with the latter, and remaining firmly imbedded, it occupies its proper position upon the model when the impression has been filled and separated, which follows in the regular order, and which enables its easy and accurate adjustment to the model with the band in place, as it was taken with the band in position in the mouth.

After adjusting the bite to the model, they are then placed upon the

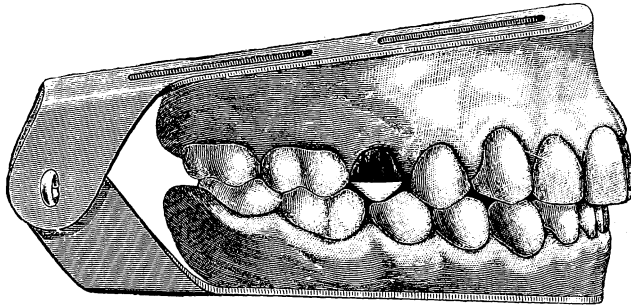


FIG. 3.

articulator, which, after having hardened and being separated, presents the band in exactly the same relation to the approximating and occluding teeth as it did when in the mouth. (Fig. 2.)

Remove the wax which still remains in the band and varnish all of the surfaces of the models that are in close proximity to or in contact with it, with either collodion or shellac, after which the band is filled with a small surplus of nicely mixed plaster, into which upon closing the articulator the occluding surfaces of the opposing teeth are firmly imprinted.

When this has become well hardened the articulator is opened and the surplus plaster trimmed down even with the outer edge of the band, the remaining portion forming a cusp which presents the perfect outlines of the antagonizing teeth.

The artistic effects are now brought into play by simply giving to the plaster cusps the natural appearance of the teeth they represent, which is very easily accomplished by *cutting in the typical grooves and pits*, not in any way destroying or interfering with those places which mark the desired points of occlusion. (Fig. 3.)

A study of the typical outlines of the teeth, or the use of models, or natural teeth as guides, will add very materially to the degree of artistic effects and appearance produced in this manner.

If it is desirable to reproduce from this a swaged cusp, the plaster should be trimmed away sufficiently to expose the edge of the band, in order to allow for the thickness of the gold used for the cusp, and to be enabled after swaging and trimming to evenly approximate its edges with the band; otherwise it would be too large.

The plaster cusp should be nicely smoothed and varnished, then removed with band from articulator, preserving outline in model, and gently pressed down into ring containing mouldine compound until the cusp and exposed edge of band are nicely imprinted. From this the die should be secured with fusible alloy, and ultimately from that the counter-die with the same metal.

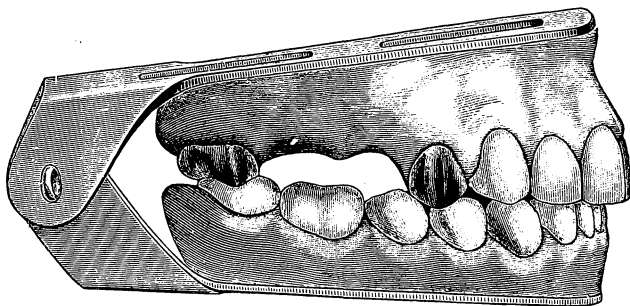


FIG. 4.

After swaging the cusp the band (without its plaster contents) should be replaced upon the models, and the edges of both trimmed until they approximate evenly, and permit the closing of the articulator into position, then wired together, soldered and finished as usual.

Where it is desirable to use a solid or cast cusp the same procedure applies, with the exception that in outlining the plaster cusp, it is permitted to remain continuous and flush with the *outside* edge of band, and then, after securing imprint in mouldine the same is placed over the Bunsen burner and allowed to dry out and harden thoroughly, after which the gold may be fused into it with the blowpipe, and easily cast by using either a piece of smooth steel or carbon large enough in diameter to cover the area of the mould.

The mouldine prepared by either Drs. Mellotte or R. C. Brophy will work nicely for this purpose, but both should be heated slowly in drying out.

The same general principles are applicable in the construction of dummies for bridge-work, and offer the same obvious advantages.

With reference to this, the detail differs but slightly from single crown work, and can best be illustrated by supposing that we have similarly constructed the individual crowns to be used as abutments which, after completion, are placed in position upon the roots, the articulating bite then taken, and followed by the impression in plaster, which, after being filled and separated and the bite adjusted, are placed upon the articulator. (Fig. 4.)

The facings are then selected, ground to fit properly, and prepared for the reception of their backings, which latter constitutes the beveling of the lingual portion of the cutting edge, in order that the backing may

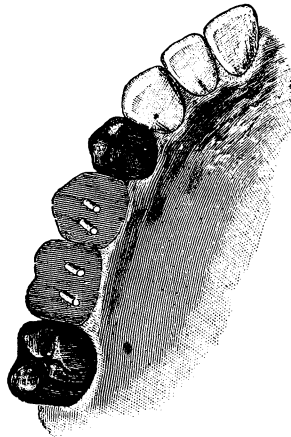


FIG. 5.

be burnished up nicely to a smooth marginal edge, which will afford ample protection when they are ultimately reinforced with the additional thickness of the cusp, and the intervening solder, which thickness must be allowed for in grinding the facings.

After burnishing the backings to fit nicely and removing the surplus on a line with the edges of the facing, they are then to be retained in position by simply pouring a little hot wax around each of the pins, which are not yet to be either bent over, cut off or riveted.

The facings with their backings are now assembled in position upon the model, and retained by means of either plaster or hard wax from the outer or buccal surface, so that when held rigidly in place their backings and cutting edges are freely exposed. (Fig. 5.)

The palatal portion of the model and the occlusal surfaces of the antagonizing teeth are now varnished to prevent the adhesion of the plaster, which is to be poured into the space against the backings in a sufficient quantity to permit of the occluding surfaces of opposing teeth being firmly imprinted.

The projecting pins will hold the plaster in contact with the facings securely, and after the plaster has hardened and the articulator is opened it is easy to trim this plaster outline of the occluding teeth, so as to produce an exact individual likeness in form, shape and size, and at the same time preserve the desired points of contact which may mark a perfect occlusion. (Fig. 6.)

The facings with their plaster cusps attached may be easily removed from the articulator, and subsequently reproduced in metal, in the same manner herein before described, with this oftentimes very desirable prerogative—that they may be either swaged collectively as one piece or

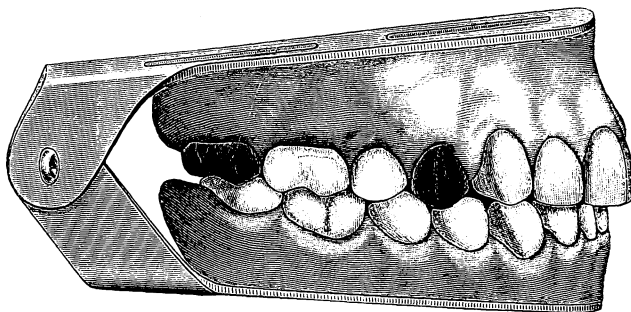


FIG. 6.

separated, and secured individually, whichever may seem the best adapted.

When the metal cusps have been swaged the plaster ones may be broken away from the facings, and their backings attached firmly by riveting the pins, after which they may be again placed in position upon the model, and the cusps trimmed and adapted to them when they are then ready to be invested and soldered.

Just previous to investing, a wise precaution is to avoid impingement of the cusps upon the cutting edges of the facings in the contraction of the solder in cooling. Due allowance can be made for this by simply leaving the space of a line between them, the same as we do between the lateral sides of the facings themselves.

While this method may seem to some to be rather too elaborate in

detail for ordinary work, a trial will serve to convince one to the contrary, and its merits meet at least the approval of those who may be predisposed to attempt that which will accomplish the most in the best manner.

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### The Sevier Crown.

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By DR. CHAS. H. SEVIER, Paris, Tenn.

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The profession, no doubt, will appreciate my *modus operandi* of making a gold crown. Having a tooth with large cavity, fill the cavity with soft wax, ask patient to "bite," trim off excess, and contour to the proper shape. Having done this, take plaster impression, from which procure a model of tooth to be crowned. Cut said tooth from the rest of the plaster model following gum margin in doing so.

Having done this, melt some low melting but hard metal, such as Melotte's or Babbit's; pour into a section of rubber hose of an inch in diameter and about the same in height; just before it sets, place the plaster model, cusp downward, in the metal; pack it well around the edges of model of gum line; allow to cool, then dig out plaster.

Having an exact impression of the tooth in the metal, take wire measurement of neck of tooth, and if you have not the Morrison outfit, borrow or buy one. Carry the gold plate down to the number of die that exactly fits into wire measurement. Having your gold cup formed of proper size, force it by a few slight taps of the hammer into the metal impression; put small shot in the "cup" and stamp down using die one size smaller than the number which the wire fits. Mark on the protruding rim of gold, the margin line; heat metal nearly to liquid state, after having *first* picked out the shot, and push the crown out of the impression metal; cut off gold at the marked line and the crown is ready for the tooth.

Grind off the natural tooth and no bite is necessary, as the crown is an exact reproduction of the tooth to be crowned.





## **Union of the American and Southern Dental Associations.**

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By THOMAS FILLEBROWN, M.D., D.M.D., Boston, Mass

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THE American Dental Association was formed as a more perfect organization to succeed the American Dental Convention, which it soon supplanted.

The Southern Dental Association was organized to supply a need which can now be better met by one large truly national body.

Both Associations have done good work, and each has supplied a want existing in the professional life of this nation.

Both have been practically local societies, though ostensibly national. The Southern has been limited by its name and its practice. The American has continued too much an Eastern institution, and has hardly kept pace with the march of progress. Its methods no longer serve its best interests; and there need be no surprise at the loud call that is heard for re-organization and the adoption of methods that shall infuse new life into its councils.

The vital question to-day is, how to form and organize a society which shall be truly national, and serve the needs of the dental profession of this country.

The most natural course seems to be a union of the American and Southern Dental Associations into one strong, national society, with a constitution which protects all interest, invites the best efforts of all its members, and provides for progress and enlargement in the future.

The profession united in one national association will respect itself more than it can while divided, will be more influential at home, and thus be able to do more to elevate professional character, and make the influence of the dental profession in America more potent in all its relations with the world.

The social element is one of the most powerful forces for the progress of humanity, and this will be greatly strengthened by union. Only few men feel able to afford the time, to say nothing of the expense, to attend two series of meetings in one season both serving the same end: hence under the present dual organization many are deprived of the satisfaction and benefit of personal acquaintance. In one association the members from the East, South, and West will come together at regular periods, compare experiences, offer mutual suggestions, and enlarge, deepen, and strengthen their personal relations. All those who were fortunate enough to attend the union meeting of the American and Southern As-

sociation in Louisville, in 1888, realize how pleasant it is to dwell together in unity.

By union the importance of the State societies will be enhanced; as the meetings of the larger body in each section of the country will be less frequent, the leading men of each State will naturally interest themselves in their home societies and make their proceedings more valuable, and thus be more able auxiliaries to the National Association.

In 1894, at Old Point Comfort, the American Dental Association appointed Thomas Fillebrown, J. Y. Crawford, Louis Jack, B. Holly Smith, and J. N. Crouse, a committee to promote the cause of union of the two Associations, and invited the Southern Dental Association to appoint a like committee for the same purpose.

In response to the invitation the Southern, at its meeting, in Atlanta, in 1895, chose Drs. L. G. Noel, E. P. Beadles, J. T. Calvert, F. Peabody, and J. R. Knapp a committee to consider the subject with the committee of the American. These committees have sought to obtain a consensus of opinion as to the desirability of union and the essential points of a plan which would prove acceptable to the members of the Associations, which would protect the interests of the minorities, and at the same time provide the best working plan at the present time possible.

At first considerable opposition to the movement was expressed. The opposition seemed based upon the fear that rights would be denied the minority and also upon affection for the old Associations. As the matter has become better understood opinion has been more and more favorable to the movement. The votes of both Associations, although not decisive, have invariably been favorable to a union.

A plan including the following provisions meets with quite general acceptance.

1. It seems desirable to take a new name, one distinctly national; just what it should be has not yet appeared. The committee invites suggestions from any member interested.
2. Divide the country into divisions, South, East and West, and meet alternately in each section. This will insure a meeting in each portion of the country every third year.
3. Organize the new Association in sections the same as the American is now, but have the president (or executive committee) appoint chairmen known to be competent and interested to do the work. It is believed this would lead to more effective and better work. Often in the past but few would be present at the organization of the sections, and men neither fitted nor interested would be chosen to official positions.
4. A return to the old committee plan has been sometimes advocated. This plan has been followed in the Southern, and the results of the past

few years have not been especially encouraging, for its adoption in a new Association.

The plan of sections above proposed contains the essentials of the committee plan, but it makes it obligatory upon every member to join one of them, and insures an efficient head to organize and lead the work.

5. A more intimate relation with the State societies may be promoted by providing that they become practically branches of the National Association, and also by making it the duty of societies sending delegates to make a report of the year's work of the society to the Association.

6. Provide for membership of permanent, delegate and honorary members as the American Association does now.

7. Choose a president at large, or from the section in which the last annual meeting was held.

Choose one vice-president from each section, the vice-presidents to be of equal rank, and not first, second and third, as is now the case, in both Associations.

8. To many it seems desirable to change the date of the meeting to some time in September, so that members will come fresh from their vacations ready for work, instead of tired out at the end of an exhausting year. The change would also avoid the excessive heat of August.

While the College Faculties Association and the National Board of Dental Examiners have done a great work for the uplifting of the profession, they have thus far been a direct injury to the interests of the National Associations.

The Southern has suffered because so many of its members have necessarily neglected its meetings to attend the meetings of the Faculties and Board of Examiners which have been held at the same time and place as the meetings of the American. The American has suffered severely by the meetings of the Faculties and Board of Examiners overlapping its meetings and absorbing the attentions of otherwise active members.

This can be remedied in one of two ways, either by the Faculties and Examiners meeting at another time than that of the National Association, or by the meeting being held a week earlier at the same place as the National Association. The latter plan is very likely to be tried the present year, and its effects can be then properly estimated. It is quite reasonable to expect the meeting of the Faculties Association to be called as early as the Friday before the time of the meeting of the American and the Southern Associations at Old Point.

If the Board of Examiners shall also meet early, the work of these bodies will be completed, and the members be left free to engage in the work of the National Association.

This is certainly one of the most important considerations for the interests of all concerned.

Dr. W. C. Barrett, at the last meeting of the American Association, and Dr. A. H. Thompson, in an article in a late issue of the *Dental Practitioner and Advertiser*, and several other interested members, have expressed the conviction that division associations should be formed to meet annually as parts of the National Society. It is undoubtedly a wise and desirable thing to do, and it seems now quite possible to carry out this idea by providing for it somewhat as follows:

1. The members of each division South, East and West may form one or more branches to meet annually, except in the year in which the National Association meets in the same division.

2. Each branch shall manage its own affairs subject to the constitution and regulations of the parent society; elect its own officers and pay its own incidental expenses. c

3. Each branch to receive delegates from societies within its limits, and they shall have the same standing in the National Association as those joining direct from local societies.

4. The proceedings of the branches to be sent to the National Association for publication in the transactions of the year.

The details of a plan to accomplish this result can be arranged which will not interfere with the customary working of the National Association. This plan will prevent the destruction of the present societies, and thus remove the principal objection that has been raised against union. One branch would be practically the Southern Association, and the Eastern would include a large proportion of the American membership.

The West might reasonably form two branches. The Western branch and the Pacific branch. Eventually the best interests of the profession may be served by making four divisions of the country. At present we shall probably better succeed with three.

This article does not presume to be exhaustive but only suggestive.

The discussion of the subject will show us the best way.

The committee has no plan nor desire save to formulate the wishes of the members of the two associations and invite suggestions as to the points mentioned, or any others which it seems desirable to have considered.

This article is printed in this department because of its importance. It is not "exclusive," having been sent to all the leading journals.—*Ed.*

## Pulps and Pulpless Teeth.

By DR. EDWARD EGGLESTON, Richmond, Va

On a subject so extensively discussed I hesitate to offer new ideas, but after all, the very fact that it is frequently mentioned is an evidence conclusive of its importance and need of discussion.

I think I have gained some knowledge from close observation that may, at least, be of benefit to young men who may not have had a chance to observe these things for themselves.

The destruction of the dental pulp is an operation of vital importance to both operator and patient. The dental pulp may, in ninety-eight per cent. of cases, be devitalized and extirpated practically without pain. This I know will seem a bold assertion to some, but it is nevertheless true, as my patients will gladly testify.

**Painless  
Extirpation of  
Dental Pulp.**

This is my method. First clean out the cavity and excavate until the patient reports sensitiveness. Then apply a paste consisting of oxide of arsenic and of morphine, equal parts, with a sufficient quantity of carbolic acid to make a thin paste. In a short time, varying from ten minutes to one hour, the patient is almost sure to complain of an uncomfortable sensation. Just at this point remove the application and with a sharp bur cut right into the pulp cavity, exposing it thoroughly and allowing it to bleed for a minute or two, which it will do freely, on account of the congestion; then renew application, seal up the cavity and dismiss the patient for a week.

At the end of this time the pulp can nearly always be removed without pain, but in rare cases, when sensation still remains, the cavity should be filled, or partially filled, with pure carbolic acid, and some force used to cause it to enter the pulp. Then seal the cavity again, and dismiss the patient for one or two days.

When this last application is removed the pulp may be extracted painlessly. If you are bothered with hemorrhage in removing pulps, use pyrozone, three or five per cent. It will decompose the blood and leave the canals absolutely white and clean.





## Plastics as a Power in Dentistry.

By J. FOSTER FLAGG, D.D.S., Philadelphia, Pa.

*Read before the Second District Dental Society, in Brooklyn, January, 1897.*

We have, I think, five filling materials in dentistry—gold in all its forms, tin in all its forms, amalgam in all its forms, gutta percha in all its forms and porcelain in all its adaptations. Our plastic filling materials are amalgam, gutta percha and porcelain. One we mix, making it from alloys into an amalgam; another we warm or soften; the other in plastic condition we form into the shapes of our cavities—the edges, the crowns, the faces—and then we secure them. Is not that pretty work? We know just what to expect from these materials. When I put a gold filling in a tooth, the patient asks me how long I think it will last. I say thirty or forty years, if you do not die before that time, and if you do, it will last forever.” When I put an amalgam filling in, I know practically how long it will last. Do I not make choice of my materials? Do we not recognize that there are submarine, contour and face alloys, and do we not know that the submarine alloys have copper for their distinguishing feature? What is the copper there for? For the purpose of controlling shrinkage. Then we have contour alloys, silver, tin and gold. We do not know that the gold is an advantage. It has never been decided. Twenty years ago it had not been decided, nor ten years ago, nor five years ago, and it is not known to-day, whether gold is really useful in an alloy; still we put it in, for it seems to us that three or four per cent. of gold gives the material a sort of velvety, buttery plasticity which seems to be acceptable. Then we come to our white alloys and our facing alloys, and zinc is the thing we add. Why? To maintain its whiteness. We make it water-tight and soft, but still we make it a filling that holds its color.

What do we hear at the present day? "I use Johnson's alloy." "I use Welch's." "I use White's." Each has had good results. What would you think of me if you were to ask me, and I should reply, "Green's for hard teeth, Brown's for soft teeth, White's for medium teeth." At Niagara, when a gentleman told me he used one in preference to another, and I asked him why (knowing from analysis that they were exactly alike) he said: "I like the other because it mixes better; its edge strength is better, it retains its color better, and it strikes me as being a better material." Yet it was really made of the same metals.

What should be the attributes of the ideal filling? I will enumerate them: 1. Easy to mix. 2. Easy to introduce. 3. Adhesive to walls. 4. Sufficiently plastic. 5. Sufficiently quick setting. 6. Resistance to attrition. 7. Good edge strength. 8. Non-shrinking. 9. Non-expanding. 10. Non-irrigating. 11. Non-conducting. 12. Tooth color. 13. Enamel finish. 14. Insoluble.

**Advantages and  
Proper Use  
of Amalgams.**

Take amalgams. I have been quoted as saying that with amalgam more work could be done satisfactorily than with all the other filling materials together. Take a hundred teeth, beginning with the strongest and best, and ending with the softest and most miserable, and I ask you if you can not accomplish with amalgam more than you could with all the others; I think you will admit that you can. Amalgam is "easy to mix." How do you mix it? Some say: "As dry as I possibly can, with the least possible amount of mercury, making as nearly as I can a dry powder, and then I introduce it into the cavity by means of warm ball burnishers and other warm instruments." Why do you do it that way? Simply to make an operation that can be done with perfect facility, and that experience proves will last for years and years.

The next thing is "easy to introduce." Is it not an advantage? Then comes "adhesive to walls." Amalgam is not adhesive to walls, but we will take care of that in a moment. Amalgam properly mixed is sufficiently plastic. What proportion of mercury should be used? Sufficient to make a perfectly plastic mass. No matter whether it is good, bad, soft, hard or indifferent, mix it with mercury enough to make a good plastic mass.

"Sufficiently quick-setting." An amalgam filling is put in; in fifteen minutes it is hard. This is accomplished by simply wafering, and tapping the wafers into homogeneity with the rest of the mass.

"Resistance to attrition." Amalgam is sufficiently resistant to attrition.

"Good edge strength." We can get a mass that will have good edge strength, and which will also be "non-shrinking."

**Valuable  
Attributes of  
Gutta Percha.**

Now as to gutta perchas. The attributes are "non-irritating, non-conducting, tooth color, enamel finish." Is there another attribute that you would like to have in connection with an ideal filling? If you had a material that possessed all those attributes, should you not be satisfied?

You have no idea how we have worked on gutta percha. As the gutta percha which has been sent to us from the gutta percha region has become poorer and poorer, it has been necessary to alter the formula so as to supply the deficiency, and yet to-day we cannot make gutta percha fillings nearly as good as Hill did in his day. How important it is that you should know what kind you are using! You should test it and know the high grade from the low grade immediately. You should know how much inorganic substance there is in it and if it is like some I had a few years ago from Boston, one part of gutta percha to nine parts of inorganics, you might just as well take a teaspoonful of whiskey to twenty-five spoonfuls of water, and who wants such a drink as that? All teeth are divided into four classes: excessively dense and excessively sensitive; excessively dense and not sensitive at all; excessively soft and excessively sensitive; and excessively soft and not at all sensitive. In connection with all of these, there are certain filling materials best adapted, as for instance, with the class that is dense without any sensitiveness; what would you fill with? Gutta percha, or a porcelain filling. A nice good hard tooth you would fill with one of three things, according to the size and position of the cavity—gold, tin or amalgam, and that is the end of the chapter.

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## **Chloroform and Ether.**

By DR. J. DENNIS CROWLEY.

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*A Practical Talk on General Anesthesia Before the Stomatological Club of San Francisco.*

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Reported by DR. CLYDE PAYNE, San Francisco, Cal.

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It is well known that we use chloroform and ether for the purpose of annihilating pain. So far as the mind is concerned, the patient is unconscious, but not every nerve, though these nerves ultimately pass to the brain.



**The Practical  
Application of  
Chloroform.**

Suppose you intend to administer chloroform to a patient to-morrow. To-day prescribe a laxative. Order very little dinner, and no breakfast on the day of the operation except milk. If you operate at eleven A. M. the stomach and intestines will be empty. Place patient on table. Remove the collar, loosen the clothing around the waist and proceed to administer the anesthetic. My method of late years has been to make a cone with a napkin, drop a few drops on the apex and administer. There is no rule as to the quantity to use. One man will take more whiskey than another. One man will walk faster than another. In making the application of chloroform, guard each life by going slowly; five drops first, then ten drops and never over twenty drops. Continue the application every fifteen to thirty seconds, with plenty of air. The patient should slowly inhale it until unconscious. It can be administered to old or young. I will give reasons later why the old do not take as kindly to it as the young. The quantity of chloroform depends upon the duration of the operation. The less you give the better.

I would advise not to give an anesthetic in phthisis, but in the early stages it is said chloroform may be administered, though not with the greatest impunity. It should not be given where there is a fatty heart. While it may be used where there is epilepsy, I would not advise it. Before the administration of an anesthetic, I recommend the use of whiskey in free doses. It can do the patient no harm, while it stimulates circulation and antagonizes the depressing effect of the anesthetic on the heart.

In the use of an anesthetic, there is a condition that supervenes, i. e., a slight congestion of the brain, of the lungs and of the stomach. In the administration of chloroform, death occurs from coma and absence of blood in the brain. When the patient becomes pale, stop the anesthetic. I think one of the causes of coma is uremia; another cause of death is cardiac paralysis; yet another is asphyxia, where blood falls into the throat and strangles the patient. I had a case recently on which I operated for a strangulated hernia. Several doctors were present. The operation was performed quickly, and as we thought successfully; not a tablespoonful of blood was lost. In raising the feet to cause the blood to gravitate to the brain, the contents of the stomach regurgitated, filling the trachea. The patient died on the table.

It may be interesting for me to relate the details in connection with two or three patients who have died under my care. In the first instance, I do not remember whether we used ether or chloroform, or a mixture of the two. The circumstances were about as follows:

About sixteen years ago I removed a sarcoma from the chest. The

tumor was so large that the patient could not place his arm by his side. I told him that he would probably die under an anesthetic; nevertheless, he insisted upon an operation and even complained because I hesitated. I removed the tumor. I do not believe two ounces of blood were lost during the operation, yet just as I finished he gave a gasp and died.

In the second instance, I had occasion to remove a tumor under the angle of the jaw. The physician who administered the anesthetic used nothing but chloroform. After the operation, the patient revived sufficiently to walk to his bed, but on the next day he died. Before he died we obtained a specimen of urine and examined it and found it largely filled with albumen.

These three cases are all that have occurred during seventeen years of practice; two on the table and one twenty-four hours later.

When should we use ether, and why not always?

**When and  
How to Use  
Ether.**

I never administer ether in the beginning of anesthesia except in special cases, or at all if I am aware that there is kidney or brain disease. In either case it is not proper to administer ether. In a severe shock always administer ether from the first. In kidney disease chloroform first and throughout the operation, and never ether. In heart disease ether not chloroform. Again I repeat, in brain and kidney diseases, chloroform, not ether. I would say chloroform can always be administered, except where there is kidney or heart disease, throughout the entire operation. In long continued operations with these exceptions, I advise the use of chloroform. It has been my habit to begin with chloroform and continue the operation with ether. The reason for beginning with chloroform is, that if you begin with ether, the patient will suffer and strangle. You can use ether where the patient's circulation is poor. In giving chloroform, sometimes the pulse becomes weak and the face pale; give ether as a stimulant. If you give an anesthetic alone I advise chloroform, except where it is contra-indicated. Regarding the safety of these agents, both are safe if properly used. Sometimes the best surgeons are the poorest to administer ether or chloroform. Before beginning an operation, make a few preparations. Have the ether and chloroform at hand and two hypodermic syringes. I always keep aromatic spirits of ammonia, digitalis and nitro-glycerine tablets handy. Suppose the patient's pulse may become weak so that there may be fear of cardiac failure. I inject aromatic spirits of ammonia in the chest or arm. Also sixty drops of digitalis in another part of the arm or chest. Two tablets one one-hundredth of a grain each of nitro-glycerine may be injected into the tissues.

During anesthesia some patients become turbulent. Those patients

have a congestion of the face. They will struggle and the hands and feet will fly into the air. Is it proper then to use force? If the hands are flying, put your hand between the hands and face of the patient. Do not take hold. There is a certain instinct in the patient to resist a great force during this stage. The patient will cease struggling. The weight of the hand will govern the legs if flying. The less force you offer, the better. If the patient continues to struggle and afterwards becomes convulsive, take a pair of forceps and draw the tongue well out of the mouth. Patient will at once take full inspiration. After you have resorted to all these measures and the patient is still unable to breathe, use artificial respiration. When operating, should the patient show signs of reduced vitality, difficulty in breathing, etc., by continuing your operation, you will stimulate him. In administering ether, you cannot permit much air to come in contact with the mouth. In administering ether I use a cone of paper. I make one for each case. Insert a mass of cotton and then pour in quite a large quantity, three to four teaspoonfuls or more, at a time. The face should be greased, as ether is an irritant to the skin.





## The Second District Dental Society.

### JANUARY MEETING.

At the January meeting of the Second District Dental Society, Dr. J. Foster Flagg, of Philadelphia, was the attraction on the programme, and over two hundred dentists filled the large hall. Besides the members very many came from New York City and from New Jersey, a special invitation having been extended to the societies in those localities. Dr. Flagg was tendered the floor at once, the usual order of business having been suspended. He did not read a paper, but merely "talked to the boys" as he would himself express it, and his talk entertained the large audience for nearly two hours. A brief report of the more practical portion of his remarks appears in this issue, his address in the main being historical, reminiscent, personal, and withal, vastly interesting. When the doctor ceased the hour was late, so that only two or three of the prominent guests were invited to discuss the subject, and their remarks follow:

**Prof. Black.  
The Unreliability  
of Amalgams.**

The subject of plastics is one that has always interested me. I have always liked to do my work easily, if I could do my patients justice; but I have always found that it was necessary to the welfare of my patients that I should do a good deal of hard work. I will ask you to go with me a moment over this field of amalgam. I will ask you to go over, in your minds, the teeth of your own patients; those whom you have watched carefully from year to year, where you have used amalgam as a filling material. I ask you if you do not find among those patients fillings that have stood well for many years, the margins remaining as perfect as you leave them. I will ask you if you do not find among those patients perhaps other fillings, in the same mouth, or fillings in different mouths made with the same material,

where after a time, one, two, three, four or five years, these fillings show with a black line. One has remained good; another has not. Here fillings have done well and there fillings have not. Was not each put in with your best skill? Was not one put in as well as another, from your standpoint? Did you not make as good an effort with one as with another? One has failed and another has not, in the same mouth under apparently the same conditions. Why? That is the question that I have asked myself. That is the question that I have asked individually of every member of the profession year after year. If it fails, it is worthless; if the filling remains, it is valuable. Why can we not have the good results continuously? In twenty years of labor upon this subject, that question has not been answered.

Whatever you may say of empiricism in this work, I do not come here to deride empiricism. Some of the best things the world knows to-day have been found empirically, and science has had to explain the facts afterward. I do not come here to denounce empiricism, but I come to say this: the scientific exposition of this subject is the basis upon which we must rest for final success in filling teeth. While pursuing the study of plastics or amalgam in the great number of years that our friend Dr. Flagg has been at work, for I have followed it and been greatly interested in it and have seen all that has been written on it, I have said: "Is there not some way by which we may know why these differences exist?" The results of my work I have given you in the *Cosmos*, in 1895 and 1896. To those of you who have not read the articles closely, I will say, "go back and look over them again."

Why have I said that there are no soft teeth? I do not have reference to the cutting into teeth with sharp instruments. I think I have explained that sufficiently. Why do I say we have no difference of great consequence in density of teeth? Take the *Cosmos* for May, 1895, in which I treat of that subject, and if you do not yourself understand the workings of those instruments, if you do not understand the means employed, and the results of those means, take that book to your civil engineer, the man who has been specially educated testing the strength of materials to see whether a bridge is sufficiently strong to bear the travel that goes over it—ask him if the means used there are not correct from the scientific standpoint? Hardness, in bearing crushing strain, and impenetrability to cutting instruments, are entirely different things. A tooth may be hard to crushing strain and not hard to cutting instruments. We, as a profession, have been deceiving ourselves upon that point. Let me say again: we, as a profession, have been deceiving ourselves—I, with the rest—upon that point as to the difference in density of the teeth.

Now as to amalgam. I go right back to the point where you find that one filling has succeeded and another failed, under similar conditions. You say perhaps it is not the same amalgam. I say you will find it true with the same amalgam—fillings made in the same hour. When I began to study the subject, I had gone over the ground as the workers in metals had presented it. I did not go to some professor to ask him. I knew what he knew already; I knew what he would find in this or that experiment; but I undertook to test the physical properties of these alloys under different conditions. All I ask you to do is to read the December *Cosmos*, and if you have not read the other numbers, read them also, so as to get an understanding of the beginning of the work. I tell you the alloy that Dr. Flagg spoke of may be one thing to-day, another thing to-morrow, and still another thing next week. It is not the same every week and every month. It will analyze the same, but it will not produce the same results in filling teeth. It will not be the same in regard to shrinkage or expansion this week and next week. I know a glass tube can be filled so that it will not leak dyes or inks, and yet the alloy need not expand. Aniline dyes are a poor test anyhow. We have means that are so much better that we cannot value it any more.

I say now from the mechanical standpoint, after having spent almost half of my time for the last two years in making amalgam fillings and examining the adaptation, that it is more difficult to make a perfect amalgam filling than a perfect gold filling, even if they do not shrink or expand in the least; and for that reason, if for no other, amalgam will always be looked upon unfavorably as a filling material.

**The President.** We would all be pleased to hear from a gentleman who has come thousands of miles to be present and read a paper at a meeting of a sister society to-morrow night. He is with us this evening; I refer to Dr. J. Leon Williams, of London.

**Dr. Williams.** I am very glad to offer my congratulations to Dr. Flagg, because he has lived to see so large measure of triumph in his work. I have followed it closely almost from the beginning, and I am on record as to my opinion of the value of that work. I admire him for the pluck and courage he has shown all the way through the fight, and for the benefits he has conferred upon dentists and upon suffering humanity; I admire him for his personal qualities. We might be led to think from Dr. Flagg's position that progress in this particular line will cease with his death. We hope that he will never die, but he may some time, and we do not want that work to cease; and if it is going to live, new scientific work must be

done. The day of miracles and inspiration is passed, and we must look to science for real benefits. We must not discard anything Dr. Flagg has done. Three or four years ago I said I believed that the future would honor Dr. Flagg for his work more than the champions of gold for their work. So I am on record with reference to my own position as to the value of plastics in dentistry. I think they have a very great future and I think it is to be finally determined almost entirely by the kind of work which Dr. Black has done in the last two or three years. In this work and the use of germicides in connection with plastics, lies the hope of saving teeth in the future, rather than with gold.

One point that I think Professor Flagg did not lay full stress upon is that it is almost an axiom in connection with the plastics that in many instances we find it necessary to leave at the bottoms of certain cavities, some decalcified dentine. I think that the leaving of a certain amount of decalcified dentine, properly sterilized, is admitted at present to be excellent practise. I think the Doctor did not lay enough stress on the thorough preparation of the edges of the cavities. The use of plastics has led to a certain amount of carelessness in practise—their use is so easy, and the fact that the cavity is not thoroughly cleansed at its bottom has led to the improper preparation of the cavity edges. With cavity edges properly and carefully prepared, we can save many teeth with plastic fillings that we could not save with gold. I think that the “gold bugs,” from a dental standpoint, cannot take exception to the arguments of Dr. Flagg to-night. He appeals to us to make use of some material that is compatible with tooth structure. He does not say that if gold is compatible in a given case, we still should not use it; but he says truly that every day in our practise, we make use of a certain amount of eclecticism in selecting materials which we *think* will prove most beneficial. We are not always able to say which material will save a given tooth in preference to some other material. Having had certain patients in charge for a sufficient length of time, we may become accustomed to working in their mouths, and our experience, if we take advantage of it, may lead us to select the most suitable material in these individual instances. I believe that the use of amalgams is every day becoming more general, as their proper use is understood.

I would like to re-echo every sentiment expressed by Professor Black. No busy practitioner ever lived who did not yearn to do more work within a day than the duration of that day ordinarily afforded him. It is the one point that I have always looked forward to,—the possibility of accomplishing more good work during a day. Personally I know that

if I possibly could do the same amount of work in a day that some claim to do, I could increase my worldly income to a great extent; but I must call attention to one point made by Professor Black: the most difficult filling to put in satisfactorily, is an amalgam filling. The most difficult gold filling, in my hands, is baby play compared with an amalgam filling, so placed that I may know it is right, and I have labored with amalgam persistently for years. The longer I use it the less I want to use it, because the more disappointing it is, after the most scrupulous care which I bestow upon its manipulation.

The most satisfactory results which I have been able to obtain with amalgam have been by using it with an excess of mercury, and the speaker this evening says that is the proper way to use it. He said that there should be enough mercury to make it plastic, and that means an excess of mercury. If we have an excess, we have an unscientific combination of materials and consequently we must get rid of that excess in some way. It is all guess work in the finishing of such filling, whether we get rid of the proper proportion or not. I have amalgam fillings in patients' mouths that I put in ten, twelve and fourteen years ago, which are as good to-day as when they were inserted, but I do not *know* when I put in another one, whether I shall be able to produce as good a result. That is the point, Professor Black's point, and that is why amalgam is the most unsafe material which we can use for filling teeth.

When a patient requests me to place his teeth in such condition that he may know they will be permanently filled, I know the only material I can use is gold. Gold is the only material with which I know that I can absolutely restore the missing portion of tooth structure, neither reproducing too much nor too little. It is impossible to do that with amalgam. The majority of men who use amalgam successfully, overbuild the missing portion of tooth structure, but with gold we can bevel off the edges of the cavity and leave the gold absolutely at the point where we want to stop. If we have the correct perception of eye, as a sculptor, or a painter might have, we are able to reproduce absolutely the tooth structure that is missing. I claim that this is impossible with amalgam. The day may come when the observations and the scientific researches of men like Professor Black will show us a method by which we may know when we are using amalgam that we are using a material which we can safely introduce into the tooth of a patient. At present it is purely guess work. To a man who has once learned the ease and facility with which gold may be introduced, in any portion of a tooth that can be kept dry, there is no comparison between a gold filling and an amalgam filling, except the difference in time needed in using the two materials.



# ORTHODONTIA

## Teeth Regulated Automatically.

By ARTHUR C. RUNYON, D.D.S., South Haven, Mich.

In the Editor's Corner, in the February number of *ITEMS OF INTEREST*, is an article entitled, "Teeth Regulated Automatically," to which I must take radical exception in some points, though I do not doubt that there may be some cases as bad as the one referred to on page 143.

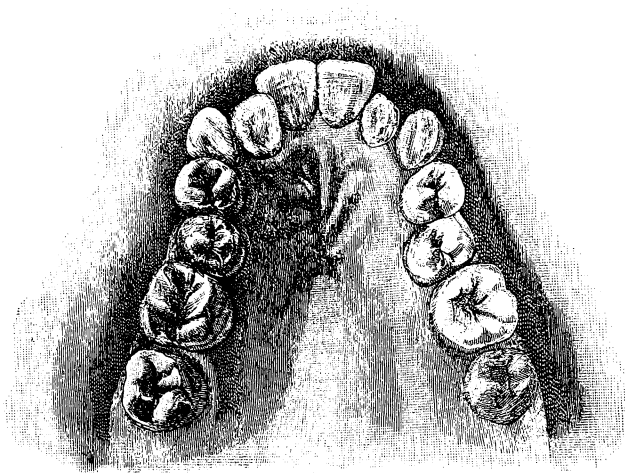


FIG. 1.

I think, for the benefit of some of the younger members of our profession, who may be situated as I have always been, a country practitioner, and for the benefit of some of their patrons, I ought to say that teeth *will* regulate automatically, and that "there is no greater fallacy than the theory that teeth *will not straighten themselves*."

Please do not understand it that I would advise waiting as the good (?) doctor did, in the article referred to, as I believe that when one has the care of children during the eruption of their permanent teeth, a great deal of vigilance, is required, and it is a matter of nice discrimination when to interfere, and when not.

We all know that permanent teeth erupt as wide as they ever will be, or, in other words, *adult* teeth appear in a *child's* mouth, and as this is a normal condition, it requires vigilance I say, to discriminate between the normal and abnormal development.

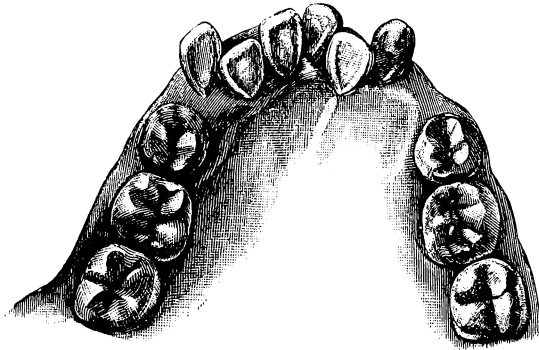


FIG. 2.

Many of us are located in parts of the country where people have not had access to dentists for three or four generations, consequently their teeth have been neglected for all time and we have not only been

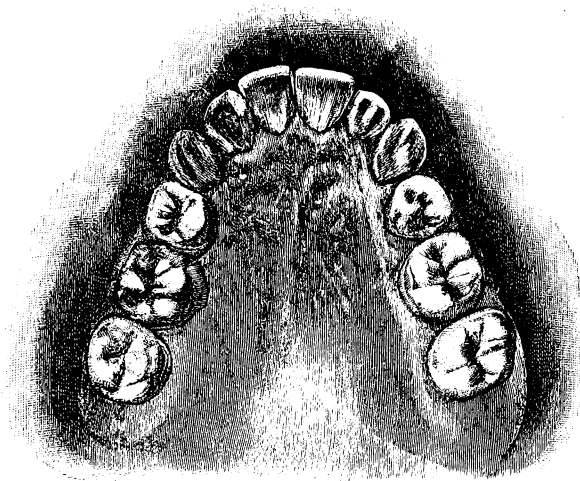


FIG. 3.

obliged to build up a practice, but to educate our patrons to the necessity of having work done.

Many times we have patients who have never been inside of a den-

tal office until they visit us. It is needless to enumerate the conditions which we find. Often the older ones have children, whose teeth are very irregular; these people cannot be induced to have them regulated properly. Yet often by judicious extraction, bad irregularities may be remedied, and sometimes facial deformities corrected.

I know whereof I speak; I have had eighteen years' experience among country people, and I have a great many models to prove my statements. I enclose models of a type which is most frequently met, which record a case in which the regulating was done almost automatically.

A young girl came into my office with another Miss who was having some work done, and I noticed the condition of her teeth. I told her that she should have them regulated and induced her to consent. It will be seen that I extracted the two first inferior bicuspid. (Figs. 1 and 2.) With some coaxing, I managed to get her to bite into some

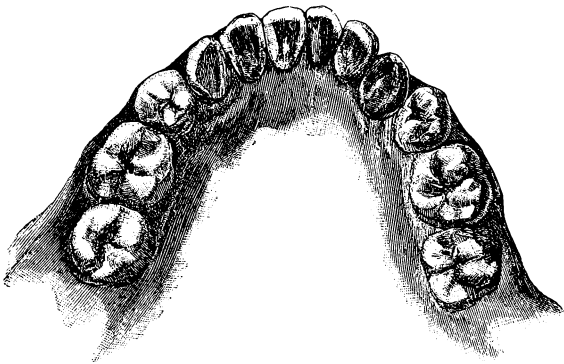


FIG. 4.

modeling compound, from which I obtained the models of the irregular condition. In a few days she submitted to the extraction of the second superior bicuspid. I extracted these because they occluded inside the cusps of the lower bicuspid. I then placed rubber bands from the inferior cuspid over the first molars, and made arrangements to see her every few days; *but I did not see her.*

However, I heard through one of her school friends that she had sprained her ankle on the day when she left my office, and that the bands hurt so badly that she took them off. Thus she wore them less than twenty-four hours, and the only manipulation exerted on the teeth was by pressing the lower cuspid back with the finger whenever she thought of it. A little over a year later she was in my office again, and I found the mouth in the condition of the second set of models. (Fig. 3 and 4.)

I obtained impressions, as it was the most radical change in so short a time I had ever seen. I see her occasionally now and the superior laterals are in better position than they are in the models.

**The Editor  
Discusses  
the Subject.**

The foregoing article, by Dr. Runyon is of considerable interest, because in the article which he answers the dogma was set up that "*teeth will not regulate themselves automatically*," whereas here the assertion is diametrically opposite. He states quite positively that "*there is no greater fallacy than that teeth will not straighten themselves*." In reply to this, let me say that in my opinion there could be no more dangerous rule of practice than one claiming that "*teeth will straighten themselves*." An analysis of the known facts, therefore, may bring us a step nearer to the truth.

In my own article, in the February number, I illustrated my point with a model, which I argued showed what might be reasonably expected from the removal of the first lower bicuspid, in a mouth crowded in the incisive region. Dr. Runyon, quite pertinently comes forward with models of exactly such a condition, in which however the final result has been most fortuitous.

But I still believe that such a perfect automatic re-arrangement of the teeth, when occurring at all, will always be *fortuitous*, rather than a *direct* and *necessary* result of the extraction.

Extraction of sound teeth is always a questionable procedure, and where decided upon, it should be the duty of the operator after making the sacrifice, to control the case and compel the result for which the sacrifice is undertaken. Any other course, is reprehensible, and the fact that the patient has no money, would not in any degree palliate the dentist's offense, if he should extract and then abandon the case.

A study of a crowded jaw, will usually disclose whether the occlusion is such that the forces of mastication would tend to a regulation of the arch, provided an obstructing tooth or teeth be removed, and where this is certainly the case, such extraction may be advised, with a hope of a good result; but even then it is obligatory upon the dentist to watch the case closely, lest his prognosis prove faulty; but it will always be better to apply force and regulate the teeth by compulsory means, fee or no fee.

By an examination of the models of the case cited by Dr. Runyon it is seen that the crowding is in *both* jaws, and that teeth were removed from *both* jaws. What followed? The tongue pressing against the lower incisors, *tended* to force them into position, the lower cuspids yielding because of the absence of the bicuspid, but more especially because the patient had been instructed to *make pressure with the fingers upon these teeth*. Again this movement of the lower incisors was made possible, be-

cause they in turn served as a force to straighten the occluding upper incisors, which were given space in the arch by the yielding of the upper cuspids, which are also receiving *pressure from the patient's fingers*.

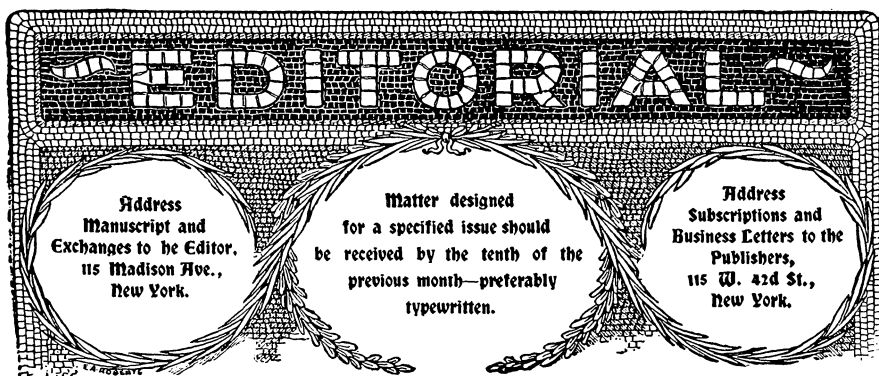
This analysis discloses the fact that had the *upper* bicuspid been retained, the upper incisors could not have yielded to the action exerted by the lower incisors, and thus the lower incisors would not have moved, so that the *upper* cuspids were the key to the situation. Thus, had the upper jaw been regular, so that there would have been no excuse for the removal of any teeth from the upper arch, the extraction of the lower bicuspid would have probably resulted in nothing but the loss of two teeth.

This case, therefore, cannot be taken as a safe basis, upon which to erect a principle of practice, especially a principle which would result so harmfully, as one which would lead the unthinking, or the unskillful to adopt the mischievous rule that "after extraction in a crowded arch, *teeth will straighten themselves*." Such a result is possible, but far from probable. It is a rare result, rather than a common occurrence.

The practice is most frequent with the lower jaw, the idea being that the cuspids will fall back, and allow the tongue to force the incisors into a regular curve. But too often the cuspids occlude so perfectly in front of the upper cuspids, that they simply *cannot* yield to such light pressure, even though assisted by the patient. The upper cuspids, remaining in position, lock the lower cuspids in place, so that no change occurs, except such as was pictured in the February number, namely the tipping of the remaining bicuspid, under the action of the forces of mastication.

Contrarily, while the cuspids, having the longest roots are logically the hardest teeth to move, they can best be moved backward immediately after the extraction of the bicuspid, which not only removes the obstructing tooth, but leaves a gap in the bone of the process. The cuspids should be *forcibly* drawn back before this socket is filled with new bone, thus again obstructing the backward movement.

Consequently, whilst the Doctor has given us an interesting, and I might almost say wonderful, evidence of the possibilities of Nature, and though he may have other models of similar character, nevertheless his rule that "teeth will straighten themselves," cannot be accepted for the guidance of young practitioners. The only proper rule is that where a practitioner recommends the sacrifice of sound teeth, it becomes his duty to see that the sacrifice is made excusable by the result; he must not allow it to prove a loss.



## **The Proposed Union of the American with the Southern Dental Association.**

In this issue appears an article by Dr. Thomas Fillebrown, a member of the committee, whose duty it will be to report a plan of union for the two great societies, the American and the Southern. In it are a few suggestions for a basis of union, upon which comment may be pertinent.

In the first place it is stated, and stated correctly, that it "seems desirable to take a new name, one distinctly national." In the last number of this magazine, such a name was suggested. "The National Dental Association." This is simple and direct, and would serve all purposes. There are, however, other names, such as "The National Academy of Dentistry," or, "The National College of Dentistry." If the word "National" is not sufficiently distinctive, the word "American" may be utilized, without appropriating the name of the present American Dental Association. We might call the body, "The Association of American Dentists," or, "The Dental Association of America," or, "The Academy of American Dentistry," or twenty other names which might be suggested, and which would be appropriate, dignified and subservient to all proper purposes.

But! There is one name which would not be adopted!

A name has been proposed, by whom, where, or when, cannot be definitely traced. But the name is being repeated industriously, sliding glibly from the tongue of that omnipresent personage, Dame Rumor.

It has only been whispered, and whispers are not always heard in full, but in all the whisperings, one word constantly occurs, the word, STOMATOLOGY; and this is exactly the only word which should never have a place in the title of the National Association of this country, which shall forever more be devoted to that science which Yankee ingenuity and American brains and progress, have made prominent throughout the entire world, under the simple term DENTISTRY.

**Objections  
to the Word  
Stomatology.**

Stomatology is a word of recent origin, which has become rapidly fashionable. Stomatological societies, clubs, academies and institutes are springing into existence with amazing frequency. Presumably all of the members of these societies, clubs, academies and institutes are stomatologists. Have they then ceased to be dentists? Presumably not. The word has not yet appeared upon any door plate, or window sign. For business purposes, therefore, the word "dentist" is still preferred. It is only at the club that the stomatologist confesses his transfiguration.

An eminent stomatologist, who had previously earned his national distinction as a "dentist," was recently asked why he favored the new name, and he gave the only good reason which has yet been advanced. He claimed that the word dentist has grown repulsive almost, because of its prominence on signs twenty feet long; on banners flying in the streets; on sandwich men; on all the window panes of many wide buildings; on hand-bills given out by liveried negroes in crowded thoroughfares, and in large type in the advertising columns of the daily press.

"If such men are dentists, in heaven's name permit me to be a stomatologist," was his final apostrophe.

It is true that the advertising men have dragged the name into a seeming contempt; but it is only seeming. Where the contempt exists, it must be only in the minds of the discerning, and these entertain contempt only for those who thus ignobly attach themselves to a learned profession. The profession itself does not suffer in the esteem of such individuals, and the esteem of the indiscriminating is of no consequence to the dentist, and would not be attracted by the stomatologist.

When barnacles attach to the bottoms of great ocean steamships, it is not the custom to construct new bottoms; the barnacles are removed

and the ship continues to sail on its own original bottom. So let it be with dentistry. If some have soiled the name, let us cling to the name and cleanse it; let us not cast aside the word which more than any other in the language, is typical of American genius and progress. America has supplied the world with dentists. Why should she abandon this achievement and begin to manufacture stomatologists?

This leads to the further query, "Where are the stomatologists graduated?" We have stomatological societies, clubs, academies and institutes, but we have no stomatological colleges, nor any stomatological degree. The licensed practitioner will long continue to be graduated from dental colleges, and given the degree Doctor of Dental Surgery.

When we shall have colleges which teach stomatology and confer the degree Doctor of Stomatology, thus dropping one D. from the D.D.S., and when these graduated stomatologists shall have grown numerous enough throughout the country to have established local, district and State Stomatological Societies, then it will be rational to organize a National Society of Stomatology. At present we are concerned with the union of the American DENTAL Society with the Southern DENTAL Society. The result of such union should logically be DENTAL not STOMATOLOGICAL. We are not yet quite ready to abandon the D.D.S., and until we are, our National Society should have a name representative of the same idea, as is conveyed by the degree which its members will hold.

In Dr. Fillebrown's paper the suggestion is made that **Sectional Division of the National Society.** **there** should be three divisions of the National organization, namely: Eastern, Southern and Western, though in the same connection he does say that perhaps four divisions would be better. It certainly would seem, by the light of logic, that four divisions would be vastly better than three. The organization plan should be as perfect as possible at the outset. Nothing is more exasperating to contemplate than the possible "revision of the constitution" in the not distant future, in order to subdivide that enormous territory which, presumably, would be accredited to the West.

At the last meeting of the American, in conversation with a gentleman from California, he related the history of an interesting case in



which he had eventually recommended his patient to visit "an Eastern specialist." Upon further inquiry it was learned that this "Eastern specialist" resided in Denver.

About one-quarter of this country lies east of the Mississippi. Why should this portion be divided into an Eastern and a Southern section, while a territory three times as extensive should be considered one section—the Western. It may be argued that there are three times as many dentists in that portion of the country east of the Mississippi as there are west of that great dividing stream. But the subdivision of the National body is deemed advisable not because of the number of dentists attending the meetings, but rather because of the number of miles which individual members might be called upon to traverse. When a meeting of the American Dental Association is held at Saratoga a man coming from California may travel more miles than the combined journeys of all the visitors from New Jersey.

**A Great Problem  
May be Solved  
by Union.**

The present object of uniting the two existing societies, as announced, is that by reorganization it is hoped that rejuvenation and a general revival of interest in scientific work may result. A much more important possibility is worthy of consideration.

Time was, not very many years ago, when a dental degree from an American college admitted the recipient to practice in any part of the world. That day has passed.

Some colleges made money, or were reputed to be financial gold-mines. The avaricious minds of many dentists were inflamed. They might become professors instead of plain practitioners, and they might grow rich without working. Students would pay for the privilege of becoming assistants in a dental shop under the guise of an infirmary for the poor. The emoluments—to wit: the surplus from "fees which covered cost of materials only," divided between the faculty, would prove fine dividends. Colleges appeared in all directions, with the logical result that men taught by professors who were incompetent to teach, when graduated were really incompetent to practice. Against this legalized incompetency the various States protested, framing laws which permitted each State to test the capability of the applicant before a license to practice would be granted. Thus the value of the American degree

depreciated. If a man graduating in Pennsylvania could not practice in New York or New Jersey, why should he be recognized in England, France or Germany? The foreigners quickly followed the lead of our States and erected barriers.

The colleges being in existence, and the State Boards of Examiners controlling the granting of licenses, it was natural that as a measure of self-protection the college faculties should hasten to elevate their standards and to improve their curriculum. In this manner the organization of State Boards of Dental Examiners have been a boon, and to-day, when the American degree has lost cast in Europe, the American graduate is probably better fitted for his work when he leaves his Alma Mater than when the D.D.S. of this country was an open sesame to the richest fields of England and the Continent.

Nevertheless, the existence of the National Association of Dental Examiners and the National Association of Dental Faculties have been detrimental to the American Dental Association by holding meetings at the same time and place, and the existence of varying dental laws in the various States has created a desire for the adoption at some time of a uniform code for all States.

Herein lies the great opportunity, which offers only when we shall have a single National Society. As suggested in our last issue, suppose that the Faculties Association and the Examining Boards could be merged into the National Association, as the educational section, perhaps divided into two committees, the College committee and the State Board committee, but as a whole operating jointly under the title, "The Board of National Examiners."

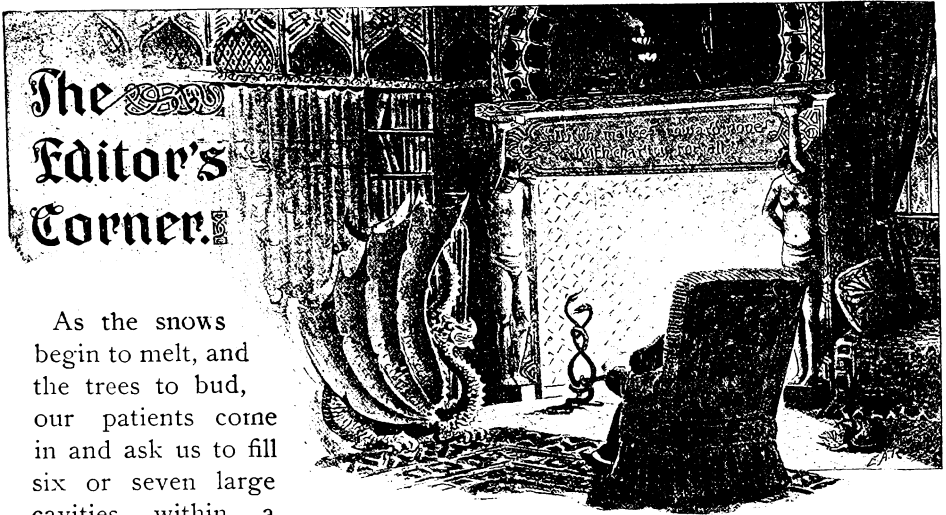
Then endow this Board of National Examiners with the power to confer a specific degree. If the Association should be known as "The National Academy of Dentistry" the degree might be "Fellow of the National Academy." To be eligible for such an examination the candidate would be required to possess a College degree or a certificate from a State Board, or perhaps both, and upon passing the examination, he would be granted the National degree. Then every State, while maintaining its present attitude toward the colleges, which has been proven to be a salutary one, might yet pass a law admitting to practice without further examination all who hold the National Degree. This would

tend to produce an ambitious effort on the part of young men to acquire knowledge, because all true Americans would naturally desire to hold the highest degree obtainable.

As to the power to grant this degree, if possible it might be obtained from Congress, but this would not be absolutely essential. By analysis we would find that all States acknowledging the National degree would have had a share in conferring it, because the Board of National Examiners would include delegates from, or perhaps all the members of, the State Boards. All of these men being legal representatives of their State interests, and having a voice in creating and maintaining the standard of the examination, each State could afford to recognize the National degree thus conferred, and if the degree were made legal in each State it would be legal in all States.

In the beginning the degree might be granted by the mere authority of the National organization, and its legal importance would be gradually attained, as the various States should grant it recognition.





## The Editor's Corner.

As the snows begin to melt, and the trees to bud, our patients come in and ask us to fill six or seven large cavities within a

week, because they are sailing for Europe. Then we begin to feel tired out with our season of hard work, and long for our vacation.

Thus it is time to think seriously of the meeting which this magazine has been announcing, to be held under its auspices at the Twin Mountain House, in the White Mountains.

### The Object of the Mountain Meeting.

The object of this meeting is a dual one. Primarily it is to afford the members of the profession an opportunity of enjoying a genuine holiday and of fraternizing with one another at the same time, taking a little science combined with a great deal of social pleasure. The chief trouble with most meetings has been that, being held by regular dental societies, there must perforce be considerable time spent in attending to "business," not to mention "politics." At our meeting there will be no "Order of Business," the order being rather to get as much enjoyment out of the occasion as possible, while at the same time there will be a *soupeon* of science and scientific discussion, as a *raison* for the assemblage.

The plan is to devote the week to the meeting, utilizing the evenings only for the reading of papers and discussions, while the days may be spent in rambles among the hills or in visits to the many bits of marvelous scenery and places of interest which are within a few miles of the hotel.

Excursion parties will be arranged for each day, which all will be invited to join. To those who have visited this most picturesque region no words of praise are needed; to those who have never been to Crawford Notch, the Profile Rock, the Summit of Mount Washington and the

other famous places in the vicinity, it need only be said that a great treat is in store for them. But above all, unlike the many places where summer meetings are held, no hot waves penetrate these wilds, except through the medium of the New York and Boston papers; and, of course, if men will read newspapers when on a holiday, they must take the consequences and suffer in their minds, recollecting, perhaps, the joyous temperature which greeted us last year at Saratoga. But the absence of heat is but one advantage, the presence of invigorating ozone being the chief reason for selecting this place for the meeting. We hope to offer the tired dentist a recreation which shall truly be a re-creation.

With this end in view it has been arranged that the reduction in rates at the hotel, which will be announced in our next issue, will hold good throughout the entire month of July. Dentists need not confine themselves to the actual time of the meeting; they may go earlier, and remain later. In the matter of railroad fares negotiations are now pending with the same idea in view. Usually the reduced fare is only good for the time of the meeting, and a few days thereafter. It is confidently expected that the railroads will extend the same courtesy as the hotel people. However, definite details will be given next month. But above all things remember that the dentist is to bring his wife, his sister or his sweetheart (or all three of the ladies) with him. We want him to have as pleasant a time as possible.

**The Awarding  
of the  
Prize Medals.**

Whilst intending that this meeting should be largely devoted to social intercourse and pleasure, at the same time it would be most desirable that the scientific side should not be neglected. Thus we have offered five medals as prizes for essays. These medals will be handsome and valuable, the gold medal costing in the neighborhood of one hundred dollars, and it is earnestly hoped that the chosen essays will be unusually fine and truly important contributions to our literature.

The awarding of prizes for literary work has always been difficult to arrange so that all would have confidence in the justice of the decisions. In many cases there have been frauds, and in many others, perhaps wrongfully, there has been suspicion. Where there are a great number of manuscripts in competition, it has always seemed strange that all of several judges should make choice of the same work as deserving of first honor. A plan has been decided upon for this competition which seems to be eminently fair, and which entirely avoids the opportunity for the opinion of one of the judges to have even the slightest influence upon the others. This will be accomplished as follows:

The manuscripts submitted will be sent to each judge separately.

Each will be requested to select the ten which he thinks to be the most meritorious, and to hand in a list of the titles in the order of his preference, numbering the best essay 10, the second best 9, the third in order 8, and so on to the end. When the judges shall have submitted their reports, the lists will be compared, and the numbers opposite each title added together, thus showing a "score," and the paper receiving the highest score by this arrangement will be awarded the first prize. Should it happen that two papers in this manner receive a similar score, the first prize gold medal will not be "divided," as is sometimes done in money prizes, but the second prize will be cast in gold, instead of silver, and thus two gold medals will be awarded. The judges will have no knowledge of the names of the authors until the final awards are announced.

It is requested that all who intend to compete for these prizes will have their manuscripts prepared and forwarded as soon as possible. Do not wait till the last week, and then fail to do justice to the subject. In this connection it will be noted, by looking over the announcement on the second page of the cover, that the time has (by request) been extended to May 10th. Later than this would prevent the announcement of the winners in the June issue, which we earnestly desire to do.

**Upon  
What Subjects  
to Write.**

Several have written asking that subjects for the essays should be suggested. There is really no limit to the range of subjects which might be chosen. The truly scientific essay, dealing with abstruse problems, will be welcome provided some important problem be solved, or some valuable fact be enunciated and proven. Otherwise we would prefer the papers to be on a plane where all who attend may find it possible to mingle in the discussions. "The Treatment of Putrescent Pulp" is often spoken of as "hackneyed," "threadbare," "worn out," yet it is worthy of note that this, more than any other subject, brings men to their feet in discussion. It is far from threadbare. The truth is, it is one of the most important of the many problems which confront us in our daily practice. New methods of treatment are suggested constantly, eagerly tried and indifferent results reported from the many who experiment. If one of the prize essays might bring forward a method which would be final, and which could be universally adopted by all practitioners, then the meeting would have been a grand success.

Then there is "Cataphoresis." Very much has been written upon this latest hobby of the profession, but strangely enough the greatest usefulness of cataphoresis has been as yet but hinted at. The palliation of pain is always desirable, but the true object of medical treatment is to cure disease. Consequently, however comfortable it may be for patients to have teeth filled painlessly, when cataphoresis aids in the cure of one

threatening abscess, more has been accomplished than when it desensitizes ten teeth. A paper, therefore, giving sound clinical reasons for the agents recommended, and enumerating the cataphoretics which may be relied upon to abort or cure abscesses would be a valuable contribution.

Many problems in bridgework have not yet been solved in the most satisfactory manner. How shall we bridge a first bicuspid between two sound neighbors? Or a lateral incisor; or a central; or a lateral and first bicuspid on the same side; or a lateral on the right, and first bicuspid on the left; or two central incisors; or the four incisors, all the abutments, in all the cases suggested being without caries and having living pulps? A paper, illustrated by models or drawings solving these problems, would stand a good chance for a prize.

Another great problem awaiting solution is the construction of a clasped lower denture, carrying a few teeth, where the natural teeth have been loosened, the piece to be so retained that it supports rather than depends from the natural teeth, thereby injuring them.

Again where the anterior lower teeth have been loosened by pyorrhoëa and have become twisted in their sockets, how may they be best held securely? By what means may they be made rigid without complicating the efforts to attain perfect hygiene?

A paper explaining a simple, effective method of regulating any deformity which we commonly meet, would be of great interest, especially if accompanied by intelligible illustrations.

If any one knows how to permanently bleach teeth, let him prepare a paper; or we would like to hear from the man who can tell us how to defy the inroads of erosion; there is room for a paper explaining how to thoroughly cleanse teeth, especially where there are deposits under the gum, and extensive pockets. With such a paper the instruments used should be submitted. We would also be glad to hear argument upon the best method of strengthening rubber plates, which constantly break in the same place; and upon the best methods of vulcanization, especially in relation to having the palatal surface clean, when taken from the model.

**A Few  
Words in Regard  
to Illustrations.**

With the January number we began to make use of illustrations. In some respects we have been successful. In others we have not been satisfied, our standard being much higher than our achievement. This calls for explanation, with the hope that what is said may bring us the co-operation of those to whom this paragraph is specifically addressed.

The reader will kindly examine closely the department of Orthodontia, as it has appeared in our several issues. It will be noted that in

January and February the department was filled with an interesting discussion, especially prepared in accordance with the chief plan of managing this department, while in the March number the plan has been abandoned, as it is again in this issue. For January, models were given to the engraver, and he did his best, which speaks for itself, and not flatteringly. This is a frank statement, but that very frankness is a test of our purpose to attain the highest. This is merely to explain why such attainment is not possible at a bound.

At first it was thought that the engraver was entirely at fault, but other specimens of his work proved that this is not the case. The secret lies in this; he is given a model and asked to make an illustration. He knows nothing of the true shapes of teeth, and therefore he laboriously copies every defect in the plaster, every distortion due to the wax impression, and every fault resulting from the lack of skill of the man who made the casts.

If the dentist would furnish an absolutely correct model, made from an impression taken in plaster of Paris, then any skilled draftsman could make a picture from it, which would have the essential characteristics of the teeth to be represented. But when models come, which require hours of carving to correct them into even a mere similitude of teeth, and which no amount of work could make absolutely accurate, it is almost futile to expect a first-class result.

In answer to this it may be claimed that one dental journal has solved the problem of illustrating teeth. This is true. The dental *Cosmos* has given us many handsome illustrations. But how have they accomplished this? In a recent communication to one of the staff, this question was asked, and in the reply received we are informed that *one man has had their engraving for forty years*, during which time he has learned the shapes of teeth, so that he is in a position to make good illustrations even from poor models, or crudely suggestive pencil sketches.

We are not willing to wait forty years for our result, and believing that our aim might be reached sooner, the "Theory and Practice" discussions were temporarily set aside that we might make experiments. Thus in the March issue an article was used, the models for which did not include any fixtures, and a new draftsman was found who made wash drawings which were reproduced in half tone. This we do not consider satisfactory, but we do believe that the results in this number where again we have restricted the demand upon the artist to models uncomplicated by appliances, give promise of a rapid attainment of a satisfactory standard of artistic work. The original drawings were again made in wash, but have then been engraved. Our artist seems to be grasping a knowledge of tooth forms, and will undoubtedly make rapid improve-



ment. Nevertheless, we must again urge upon those who send in papers requiring illustration that they pay special attention to the models so that they may accurately represent the mouths which they are intended to illustrate.

**Professional Ethics  
Extended to Include  
Dental Dealers.**

At the March meeting of the Central Dental Association of Northern New Jersey a paper was read by Dr. Joseph Head, of Philadelphia, the title of which was "Dental Ethics." The paper may be said to have been divided into three parts. The first discussed the ethical treatment of the patients of other dentists when in our hands, and kindred matters of professional relationships. In the second part the author touched upon certain questionable proceedings in Philadelphia, in which several prominent dentists, an important college, and a dental manufacturing house, were said to be involved. It would seem that such unfortunate dissensions might best be settled in the locality where they occur with as little publicity as possible.

The third part of the paper had direct bearing upon the publishers of this magazine, and it may be of interest to make a report of the proceedings. Dr. Head claimed that the Consolidated Dental Manufacturing Company had trespassed upon the domains of the dental profession by conducting a dental laboratory, to which dentists might send models and have crowns, bridgework or artificial dentures constructed. He argued that the dealer in dental goods should sell supplies and not practice dentistry in any form.

Dr. Frantz, the president of the Consolidated, being present, was accorded the privileges of the floor, and his remarks were received with great approval. He explained that in the first place the dental laboratory had been a branch of the business before he became personally connected with it, and secondly that this was the first intimation that had reached him that such a department might be obnoxious to dental practitioners. He pointed out that the laboratory was not really a place where dentistry was practiced, as absolutely no work had ever been done for patients, but only for dentists. He had supposed that if it was legitimate to sell a ready made crown, it was equally legitimate to first fit the crown to the model of the tooth which it was expected to cover. He had also thought that as so many men have all their time occupied in operating they would welcome a laboratory to which they might turn for high-class prosthetic work. If, however, this had been an error, it was an error which could be readily rectified. The only valid objection that he could see to the laboratory, now that objection had been raised, might be that incompetent men were thus enabled to compete with their more skilled competitors. Under these circumstances he announced

that the matter should receive consideration and that the laboratory would probably be abandoned. This promise was met with hearty applause, and the doctor undoubtedly increased the number of his friends in New Jersey.

**A Card  
For Distribution  
Among Patients.**

Dr. James Louis Blish, of Fond du Lac, Wis., has forwarded the following rather witty suggestion for a dissemination of that kind of knowledge which might tend to render the lot of a dentist "a happy one." It is evident from the realism of the effusion that though satirical in style and amusing in form, there is a subtle truth between the lines, which tells us that the doctor is not a beginner in his profession. Evidently he has had "experience."

When you have an engagement with a dentist, always be on hand at least half an hour ahead of your time, and upon entering the office totally ignore the office girl (if there be one) and make your way to the dentist as soon as possible.

"If he is working at the chair, you may enter immediately upon any topic of conversation you wish, and just to show that there is no feeling, step around in front of the operator and patient, that you may observe every detail of the operation.

"This will prove that you are on intimate terms with the dentist, and to further avoid any show of formality call the dentist 'Doc.'

"Recall all the cases of blood-poisoning and lock-jaw which you ever heard of (and some you never heard of) which were the direct result of dental operations. This will help the patient to bear up.

"When your turn comes, begin by telling the dentist how sensitive your teeth are, and then, while he works, keep up a continual groaning; this will lead him to think that you are being hurt and he will, in consequence, do less excavating (perhaps).

"Always keep one hand resting on the arm of the operator, that you may be able to immediately stop him in case he should 'hit the nerve.'

"During the short intervals of time, when the dentist is not working on your teeth, recount all the strange phenomena regarding your ancestors' teeth; he is sure to be surprised at hearing that your grandfather had 'a double row all round.'

"Never pay a dentist cash. Wait at least a year and see if the work 'stays in;' if it does, well and good, but if it does not, go to some other dentist and work the same game, and so on *ad infinitum*. Dentists make their money too easily anyway.

"Should your dentist have the audacity to send you a bill, quit him at once.

"Patients ordering plates should insist on having small, white teeth,

as a great many dentists try to harmonize the color of the teeth with the hair, eyes and complexion and lose sight of the fact that your own teeth were small and white.

"If, after wearing a plate three days, you cannot eat corn from the cob, return it.

"To test a plate crack hickory nuts with it.

"And to the end that you do not get humbugged, read this over before consulting a dentist."

**The  
Practice Builder  
On the Press.**

A great many letters recently have reached us concerning this work which has so long been advertised. Consequently a letter of inquiry as to the time of issue was sent to the publishers. In reply, the author called and explained that the original plan of the work has been changed since its inception, and as it has grown in the manuscript, the field which it will cover has been broadened, until now it will review the domain of dentistry from seventy different aspects, covered by as many different chapters.

A full set of proof sheets was left with us from which it is seen that *The Practice Builder* will fill an entirely unoccupied niche. It will be a very unique work, of great interest and usefulness to the majority of practitioners. A full review will be given as soon as the book appears, publication being promised early in April.

**The Renowned  
Paul Revere  
a Dentist.**

We look among the list of dentists of the past and find many heroes; men who heroically fought to elevate dentistry from the degradation of a secret calling to the elevated plane of a liberal profession; and we find many names worthy of entablature within the halls of the temple of science. But it is rare that we may look among the heroes of our country and find a dentist; yet the following, clipped from the *Tribune*, attests such a fact:

"WHEREAS, MANY PERSONS ARE SO UNFORTUNATE AS TO LOSE THEIR Fore-Teeth by Accident, and otherways, to their great Detriment, not only in Looks, but Speaking both in Public and Private: This is to inform all such, that they may have them re-placed with artificial Ones, that look as well as the Natural & answer the End of Speaking to all Intents, by PAUL REVERE, Goldsmith, near the Head of Dr. Clarke's Wharf, Boston."

This quaint advertisement, which appeared in *The Boston Gazette*, of December 19, 1768, serves to show that Mr. Revere was a man various and versatile. It appears that his business was not solely to be a Revolutionary hero, to take exciting midnight rides and warn the minute-men, but that in his odd moments he carried on the more lucrative trades of goldsmith and dentist. His occupation as a handicraftsman in precious

metals has long been known, but the landlord who said, "Listen, my children, and you shall hear," did not give the wide-eyed young people the interesting details in regard to Paul's dental work. In fact, his skill in this direction might never have been known had he not conceived the rare value of advertising.

**The Production  
of Platinum  
in Russia.**

The *Financial News* of London says:

"Some interesting statistics with regard to the production of platinum in Russia were recently published by the Russian Minister of Finance. Russia holds first place in the world as a platinum producer, her annual output being forty times as great as that of all other countries combined.

"In 1880 the amount produced was 2,946 kilogrammes, and this had increased by 1895 to 4,413 kilogrammes. The turn-out has, in fact, continually increased, the only exception being that the figures for 1895 were less than the 5,028 kilogrammes of 1894, owing to the wet weather prevailing during the summer. The rare metal platinum is exclusively found in the South Ural. The uses to which it can be applied fail to create any demand for it in Russia, and it is exported in its raw state to Germany, where it is manufactured.

"The price has been very high during the last few years, and at present the kilogramme costs £45. Besides platinum, the much rarer metal iridium, which is now extensively used, on account of its extreme hardness, in the manufacture of gold pens, is found, but in very small quantities. Last year only 4.1 kilogrammes, and in 1894 very little more, was found of the latter metal."

**Five Thousand  
Natural Teeth  
Wanted.**

In connection with some investigations which I have in progress, and in contemplation, I need a great number and variety of perfect natural teeth, whether of normal or abnormal shape making no great difference. If any of our readers have such teeth, which they are willing to let me have, I should appreciate the courtesy, and when anyone has a large number, I am willing to pay a reasonable cash price, but in such cases it will be better to communicate with me before forwarding.

R. OTTOLENGUI.



## **Cardy Eruption of a Cuspid.**

By DR. R. L. WILLIAMS, Kane, Pa.

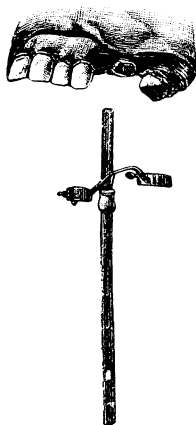
Recently a peculiar case of an imprisoned upper right cuspid came under my personal notice. Patient, a man about fifty years of age. Teeth extracted about three and a half years ago. Has worn a full upper denture on a rubber base for three years. Recently he was obliged to discard this plate, because a slight swelling made its appearance toward the median line about three-fourths of an inch from the place where the cuspid should have erupted. Consultation with a physician elicited the fact that there was a slight showing of pus in the swollen parts, and that an instrument touched what felt like a necrossed bone. At least, that was the physician's idea upon a first and hurried examination. He was sent to my partner, Dr. C. T. Felt, for a more explicit diagnosis and treatment.

Upon a careful examination by Dr. Felt and myself, we both came to the conclusion that an imprisoned tooth was the exciting cause of the trouble, and we decided to remove it. An incision was made about half an inch long, parallel to the median line, and a second incision at right angles to this, so as to turn back four flaps. This exposed the hard plate and showed a small point of the cusp of the tooth just emerging through the bone. With a sharp chisel, the thin bone was chipped away and a firm hold obtained with a pair of root forceps. It required a great effort to dislodge the tooth, but fortunately it was not fractured in its removal. It was over an inch in length and nearly perfectly developed, with the exception of the enamel on the point of the cusp, this being quite pitted and chalky. The end of the root was bent at almost right angles, curving toward the median line. The wound was syringed out with a 2 per cent. solution of carbolyzed water and dressed, and to-day (ten days after operation) the patient is wearing his plate with comfort, complete healing having supervened.

## Drainage Tube for the Antrum.

By DR. ALLEN OSMUN, Newark, N. J.

The accompanying illustrations show a little device for flushing a badly diseased antrum. It will be noticed that in this case the bicusps are absent, the one remaining molar standing at an acute angle. The history of the case disclosed that it had been operated upon some two or three years previously, and was dismissed as cured. On a return of the foetid discharge, she presented herself for treatment. Owing to the great thickness of the bone, which can be judged from the length of the tube, which reaches just to the floor of the antrum, it was found that it would



be a difficult matter to keep the outlet open and to secure a thorough cleaning by the use of a syringe, which proved to be a painful operation.

This little device was constructed, and was found to answer admirably, thoroughly flushing out the antrum.

Angle bands were placed in position on the molar and canine. The tube was placed in opening into the antrum, care being exercised so that it went to the floor of the antrum and no further. Then an impression was taken, the whole coming away in the impression, viz., the bands and the tube. After the model was made these were united by a narrow 22K. gold band, thus permanently connecting all parts. A small tube was made to extend into the larger one about half-an-inch. On it was a collar, which prevented it from going in farther, and the opposite end

fashioned to hold a small rubber tube, about three feet in length, fastened to a fountain syringe, which was always hung up higher than the patient. This may be regulated, according to the amount of force required.

By this method the antrum was flushed three or four times per day, easily, thoroughly, and without any pain to the patient. Moreover the patient can do all this at home, thereby securing a more uniform result than by coming so many times to the office. This device has proved very satisfactory. The angle bands permit of easy adjustment, without cutting or grinding the teeth in any way, which is essential, as the long tube extending into the antrum would make it difficult to place the device in position if made with rigid bands.

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### **Facial Deformity Affecting the Mind.**

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By DR. W. H. TRUMAN, Phila.

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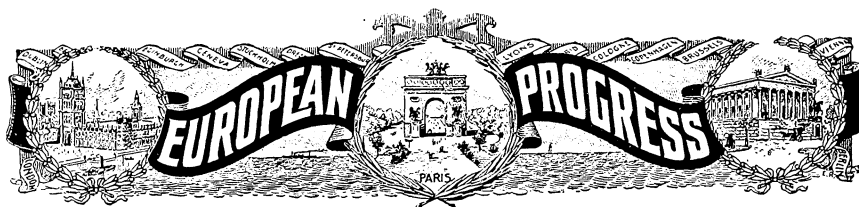
I had a case where a marked mental impress resulted from a conspicuous facial deformity. A lad of about fifteen was brought to me. The day before his elocution teacher had discovered a marked malocclusion that, strange to say, no one at home had noted, and this was his first visit to a dentist. He had been a delicate child, having been unable to walk, owing to imperfect development of the bony tissues, until about his seventh year. At this time his health was fairly good, and physically he seemed well developed. His mother informed me that he was of a very peculiar disposition, which they attributed to injury at birth, and to that also they attributed in a measure his delicate health during childhood. While he made fair progress in his studies at school he would not mingle with other children, took no interest in their sports, and at home showed a strong aversion to company; indeed, took but little interest in anything. On examination I found that in occlusion the second molars alone touched, and that the front teeth, when these molars were in close contact, did not meet by nearly three-quarters of an inch. He could not approximate the lips, and this gave him a marked idiotic expression. He seemed to be constantly making an effort to bring the lips together, thus making the deformity more conspicuous. I found him quite apathetic. He took but little interest in the examination, or the suggestions made, and impressed me as being the idiot that he looked. The second molar teeth were extracted, and the first molars ground as short as prudence permitted. As an immediate result, the occlusion

was so far improved that the bicuspid teeth became useful in mastication, the incisors approximated to within about a quarter of an inch, and the lips could be comfortably closed. The change in his expression was very great—not more so, however, than the change in the boy; it was a transformation. It is a marvel to me that the cause of so marked a deformity should have so long escaped the notice of an anxious, watchful mother and that of the family physician, a near relative and a man of ability and experience, under whose care he frequently was.

How the deformity developed I could obtain no information; its existence was to them a surprise. I have no doubt that it was hereditary. I had a few years before made for his father a full denture, and had a great deal of trouble owing to the very marked disparity in the length of the posterior and anterior teeth. At the time the boy came into my care the father was suffering from paralysis, and, other than that he had been edentulous for many years, I was unable to obtain anything regarding his dental history. In this case the anterior teeth continued to approach, so that after the lapse of a year or two, without further attention, they nearly met, and now the occlusion is fairly good. The mental peculiarities in the boy disappeared within a short time after he found that he could mingle with others without being stared at, and he became like other boys.—*International*.







## Why Do Metal Clasps Cause Less Destruction of the Teeth Than Rubber Clasps?

Translated by GEORGE RANDORF, Berlin, Germany.

The fact that a tooth held by a rubber clasp is usually one over which a sentence of death is pronounced, cannot be denied, says Dr. C. Zung, of Heidelberg, in *Oester-Ung. Viertelj. f. Zahnk.* Very soon after the clasp has been in use, ring-shaped caries appear, especially near the neck of the tooth, and in no time the tooth is lost. It is quite different with a gold clasp. Of course, decay may also be noticeable in time, but not so pronounced, and as a rule it does not occur so quickly. The manner of decay also differs. It appears to be more a kind of mechanical wearing out (especially with narrow wire clasps), and true caries is less often seen.

We cannot thoroughly explain this difference in the wear of the two kinds of clasps. With metal clasps there is always a slight space between the tooth and the clasp, even though the tooth be most carefully fitted, and bits of food can be more easily removed from this space than from under the tight-fitting vulcanite clasps; consequently there is less fermentable material left to produce acids and destroy the tooth. Moreover, the smooth surface of a metal clasp would less favor the adhesion of bits of food than the uneven, porous surface of a rubber clasp.

### **Germinical Action of Gold Clasps.**

The true reason, perhaps, is to be found in the deterrent influence of the metal upon the cause of the fermentation, a proposition which seems quite reasonable in view of the results of modern bacteriological research. We know that metals, especially precious metals, are able to inhibit the development of micro-organisms through contact, though we cannot explain why. The latest researches of Halsted, of Credé, and others, show that many kinds of bacilli excrete acids in culture mediums which, in *statu nascendi*, attack silver and other

metals, so that metagallic acids are formed, which react antiseptically, and become fatal to their progenitors.

It would be well to test this by lining all rubber clasps with gold, which may be readily accomplished. Use a thin band of fourteen or sixteen karat gold to which the rubber may be made to adhere either by punching holes or by soldering on it small eyes. Pure platinum or fine gold are not as well adapted to this purpose as the lower alloys, but the impure metals will not serve at all. The band should not be too thin as the edges would then be too easily bent.

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### The Herbst Prize.

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Reported by GEORGE RANDORF, Berlin, Germany.

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At a meeting of German doctors and naturalists, held recently at Frankfort-on-the-Main, Dr. Herbst resolved to offer a prize of one thousand marks (about \$250—which sum has been deposited in the banking house of Schultze & Wolde, in Bremen) for the discovery of a means of rendering the teeth insensible to pain during the process of excavation of the teeth, thereby rendering the work of the dentist easier and causing relief to the patient.

**Conditions Attached  
to the  
Prize Offer**

The method must not be a secret one. It must be new—that is, not resembling anything hitherto known of similar efficacy. It must work quickly and reliably, and its result must be obtained immediately, and not several hours after application. Its sphere of activity must be confined solely to the sensitive tooth, and must not in any way affect the pulp or adjacent tissues. The dentine must not be injured by the application. The means to be used must, therefore, in the literal sense of the words, be perfectly harmless, and its effect must be confined to desensitising the tooth-bone, without causing the slightest ill-effects after it has been used.

The time allowed for the discovery of such a method is limited to one year, from the first of October, 1896. It is open to everybody to enter as a competitor for the prize. The preparation must be forwarded to the undersigned under seal, with full directions for its use, and bearing a mark or motto. A sealed envelope, containing the name, address of discoverer, and similar motto, as well as the ingredients used, are to ac-

company the competitor's preparation. This envelope will remain unopened until after the termination of the examination.

The experimental tests will be conducted by Dr. Herbst, the founder of the prize, in the dental departments of the German Universities; the judges to include three gentlemen chosen from the members of University councils. They will decide whether the preparations comply with the foregoing conditions, and by them the prize will be awarded to the successful competitor. Should the best preparation not absolutely meet with the unqualified approbation of the judges, but notwithstanding be considered valuable in dental surgery, it shall be in the power of the judges to award a prize of less value, up to one-half of the full amount of the prize, whilst the other half of the prize may be awarded to another competitor who shall have discovered another valuable method. Should but one half of the prize be awarded, the remaining sum is to be devoted to some other deserving object in connection with dental surgery.

Signed,  
Dr. JESSEN STRASBURG  
Bremen, October. 1896.

Approved of by  
WILLIAM HERBST.

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## **Objects and Methods of Modern Dentistry.**

By GEORGE RANDORF, Berlin, Germany.

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If there are still many American dentists who think that their brethren in the profession on this side of the water blindly follow their lead, they will be rudely shaken by the following lines. That our wonderful skill and taste are admired in Europe will be admitted, but let us take a look at ourselves "as others see us."

Dr. A. Limberg, of St. Petersburg, is one of the shining lights in the Russian dental world. His paper read before the "St. Petersburg Society of Dentists and Doctors Practising Dentistry," in which he reviews the dental literature of the past decade, is certainly very interesting.

Our learned Russian brother complains that the specialists in all lands, in developing chiefly the practical side of dentistry without any guiding general object, often bring to the front questions of secondary importance, and occasionally are even carried to extremes. However, two distinct currents are observable. The first, coming from America, for the past thirty years has dominated the leading minds to such an

extent that a departure from the fundamental principles of American dentistry is considered by many now a sign of retrogression or incapacity for solid work. It is characterized by the technical skill with a predominance of artistic aims over medical treatment; the use of expensive materials and complicated instruments, all of which make dentistry possible only for the rich.

The other current originated in Germany only eight or nine years ago, and rapidly carried with it most of the educated, energetic and young dental practitioners, especially in England. Its aim is the education of the people as to the hygiene of teeth and rational prophylaxis, by means of the organization of a regular dental corps in the schools, with teaching the conservative treatment of teeth.

In Russia, it seems, American principles of dentistry have never enjoyed great popularity. The only thing, perhaps, in which the prevailing fashion was followed was the encumbering of the dental cabinet with all kinds of expensive appurtenances, so confidently recommended by the loquacious agents of foreign firms, which see in Russia a rich field for "cultivation." But now there is a tendency towards simplification and conservative methods of treatment.

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## Dental Photography with the Roentgen X Rays.

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Translated by GEORGE RANDORF, Berlin, Germany.

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The Roentgen photography in connection with dental surgery, has so far been received with little interest; therefore it may not be out of place to consider the question: "Of what benefit to dental surgery is the discovery of the Roentgen rays?" Dr. Schaeffer-Stuckert, of Frankfurt, gives in *Deutsche Monatschrift* the following answer to this question:

To my mind the value of this discovery appears beyond question, and putting aside the theoretical examination, I will speak of the results of my experiments with the rays.

Although almost all dentists have noted instances of temporary teeth remaining permanently, these cases are generally regarded as abnormal. There are three causes for this unusual occurrence; first, where the permanent teeth are altogether wanting; second, where they are incompletely developed; third, where they are well developed, but have grown into a false position. It would be important, therefore, if we

could, through the X-rays, gain an insight of the jaws, so that the exact abnormal condition might be recognized.

The great point is to obtain an exact and true view of the objects lying beneath the surface of the bone, and to accomplish this, many difficulties are to be overcome, as this portion of the human body is not so easily photographed as others.

It is well known that Roentgen photography  
**Method of** is the reproduction of a shadow picture upon the  
**Applying X Rays** sensitive plate. We have seen how the bones of  
**In the Mouth.** the human hand have been photographed by these  
 rays with almost anatomical perfection. A thick

layer of bone renders reproduction more difficult. To pierce through the bones of the skull is the greatest feat of the X ray, and so far it has not been possible, in photographing the whole skull, to give a perfect view of the region of the jaw bones. Another method was therefore necessary in order to accomplish this object, and that was to place the sensitive plate within the mouth and to work the rays from the outside upon the plate. In this experiment more difficulty was encountered in connection with the upper jaw than with the lower jaw. In the lower jaw we can place the plate close to the teeth and bones; whilst in the upper we find a thick stratum of bone lying beyond the teeth and roots, which prevents us from placing the plate parallel with the teeth.

It may be here remarked that the sensitive plate used for operations with the mouth, is not made of glass, but of a yielding composition. The films are cut up into small pieces and placed in envelopes which shut out the light. These envelopes are wrapped up in gutta percha layers and so kept ready for use.

For Roentgen photography, three instruments are required:

First—Pipes in which the X rays are produced through powerful inductors.

Second—The inductor into which the secondary stream flows

Third—The battery which works the primary stream.

The success of a "taking" depends upon the quality of the pipes used. The form of the pipes is mostly that of a ball into which the two opposite electric streams flow. The following experiment was made by me:

The head of the patient was firmly fixed, and the film, held on either side with the first finger, was placed in the mouth close to the teeth and gums. The success of this operation was in a measure due to the fact that the film was pressed so firmly upon the gums by means of the fingers. The operator must not forget to keep the other fingers of the hand well out of reach of the rays, so that no foreign shadows are thrown upon

the plate. As a matter of course, both the patient and the operator must remain perfectly still whilst holding the film. The time occupied in the taking was, in every case, exactly five minutes; this is a short space of time in comparison to that required for the first experiments with the X rays, but it is still sufficiently long for the patient to sit still in.

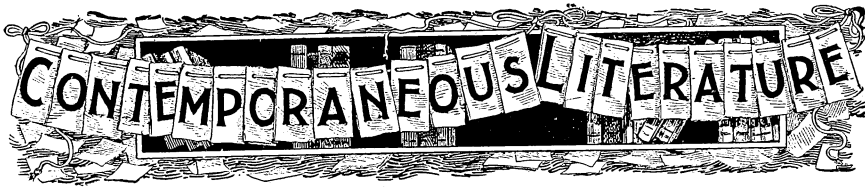
This operation may be performed with any sort of light, and the film will be taken to a darkened room and developed in the usual photographic way. During the development of this negative, conditions opposite to those of the ordinary negative were observed. The teeth upon the Roentgen negative appeared white, the bone substance recognizable through light and dark shades as in an ordinary drawing, and the part between the crowns of the teeth was black.

**X Rays Show  
Uninterrupted  
Teeth.**

Miss B., aged sixteen, had two permanent central incisors whilst the other front teeth were of the temporary set. A photograph was produced by placing the film behind the whole front of the teeth and directing the X rays along the median line. A very good result was obtained. In the photograph, we see the two permanent central incisors with their roots and on either side, the two temporary lateral incisors and the two temporary cuspids. The bone substance is easily recognizable, and in the region of the roots of the teeth four tooth crowns are perfectly visible. These are the crowns of the four hidden, permanent teeth. For dental surgery, this is a photograph of unusual interest, as externally there was no swelling of the gums apparent.

Miss S., twenty years of age. Two temporary canines still in position. Through a photograph of her mouth taken by the X rays, a perfect view was obtained of the permanent teeth, whilst the uninterrupted canines appeared as a faint white blotch above the temporary teeth.





## **The Devitalization of Pulps of Temporary Teeth.**

By DR. DARBY, Phila., Pa.

One of our great difficulties in dealing with the teeth of children is the devitalization of the pulps when indicated. I have used, and with much success, for this purpose a paste of powdered cantharides and carbolic acid; say about one-twentieth grain of the powder with enough carbolic acid or creosote to make a paste. I know that the use of arsenic for this purpose is justly viewed with much suspicion, but my opinion is that it is largely a question of how much arsenic is used. I use arsenic for this purpose in very minute quantities and have had no ill-results. The canals of children's teeth should, of course, be cleansed thoroughly and sterilized. I question the use of cotton dressings in these cases, for should the foramen be large, owing to a partial resorption of roots, soft tissues might be impinged upon, and the cotton becomes a source of irritation or worse. I think the safer practice is to use fluid in the canals and oxychloride in the pulp-chamber. An old practice was to fill the crown cavity and drill a vent-hole through the root. This has been abandoned for good and sufficient reasons.—*International*.

## **Resorption of Roots of Temporary Teeth.**

By HENRY H. BURCHARD, M.D., D.D.S., Phila., Pa.

Touching the question of the resorption of the roots of temporary teeth, it is brought about by multinucleated cells, which are named from their function odontoclasts,—that is, the removal of the roots is a species of phagocytosis. The process begins usually upon some lateral aspect of the root near the apex, not at the apex. Now, if the tissues of the pericementum be healthy, the process goes on uninterruptedly; if they are the seat of disease, this cellular function is not performed. The most prominent source of disturbance is debility of these cells from poisoning by the action of the waste-products of pathogenic organisms, notably the

pyogenic organisms. If this poisoning is prevented by absolute sterilization, the resorption occurs even in the absence of the pulp. The resorption begins very soon after the roots of the teeth are complete; the building up is very quickly followed by the tearing down. The roots of the temporary teeth are completed between the fourth and sixth years. The sum and substance of the problem is to prevent the entrance of pyogenic organisms to the apical portions of the pericementum, and this means constant care.—*International*.

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### **Abscesses on Temporary Teeth.**

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By HENRY H. BURCHARD, M.D., D.D.S., Phila., Pa.

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We frequently hear the expression, "The large open canals of temporary teeth." Any one may demonstrate conclusively that there is an error here. Make some sections of the roots of temporary molars, and while you will find the pulp-chamber relatively large, as a rule, the canals are not large, and may be thin and tortuous. I mean, of course, in fully-formed roots, before resorption begins.

When we are confronted with abscess upon temporary teeth, not infrequently we have marked examples of the swift reactions of the infantile system. I have noted many cases of septic intoxication in connection with abscess upon the temporary teeth, and in some instances marked septic poisoning, rigors, a fever with temperature 104 deg., some delirium, and disturbances of the alimentary tract. These cases should have early evacuation and thorough syringing with pyrozone, three per cent., followed by an injection of a ten per cent. solution of meditrina, and the symptoms usually vanish. After sterilization and the subsidence of the inflammatory symptoms, the roots of these teeth should be filled with balsamo del deserto, if you can manipulate it; nearly all of my attempts to use it, following the directions given, have resulted in dismal failure, and recourse was had to salol or paraffine. Aristol is a good medicinal dressing for these cases.

In cavities which cannot be given a retentive form, the advance of caries may be prevented by rubbing the surface of the dentine with fused nitrite of silver. A portion of the salt is placed upon a platinum wire and held over a flame until fused into a button as described by Dr. Craven. This is to be rubbed freely over the dentine. Of course it discolors, but that is a minor evil in the temporary teeth.—*International*.



## Coating Casts for Vulcanite Work.

By THEO. CHUPEIN, D.D.S., Phila., Pa.

Procure a quarter of an ounce of collodion, add to this three-quarters of an ounce of sulphuric ether, so as to thin the collodion down, and pour into the bottle containing these a package of "silver gloss." This is a preparation of tin and zinc, and may be obtained of all dealers in paints, oils, etc. Though called silver gloss it contains no silver. It comes put up in papers of an ounce or more, in the form of an impalpable powder. It unites to a certain extent with the collodion, when shaken, and is applied to the face of the plaster-cast, as well as to the reverse of the investment in the case flaked for vulcanite work, with a camel's-hair pencil, leaving a very even and thin film over these, which effectually prevents the adhesion of the vulcanite to the plaster, permitting the case to come from the flask clean. The silver gloss may be had at slight expense, enough to last for a year or more with ordinary use. It should be kept in a well-corked bottle, and the pencil cleaned after each use. Should particles of it adhere to the plate, it can be entirely eaten off by immersing in a bath of nitric acid and water—one-quarter acid, three-quarters water; but this we have not found necessary, as it comes from the flask clean.—*Dental Office and Laboratory.*

## What a Dentist Should Do in Cases of Poisoning.

By C. W. GLASSINGTON, M.R.C.S., Edinburgh.

1. Send for medical assistance, saying, if possible, what the patient has taken or what has been administered. 2. If in doubt as to what poison has been taken, give an emetic of mustard and water, or a hypodermic injection of apomorphin. 3. Refer to the following poisons and their antidotes:

Aconite.—1. Stomach tube. 2. Emetics of mustard and water, sulphite of zinc, or apomorphin. 3. Stimulants. 4. Recumbent position. 5. Inhalation of nitrite of amyl. 6. Artificial respiration.

Ammonia (Strong Solution of).—1. Vinegar and water, lemon or orange juice, dilute acetic acid in water. 2. Demulcent drinks.

Arsenic.—1. Stomach tube. 2. Emetics of mustard and water, or apomorphin. 3. Magnesia in large quantities or dialysed iron (1 ounce). 4. Stimulants.

Carbolic Acid and Creasote.—1. Stomach tube. 2. Emetics of apomorphin or mustard and water. 3. Epsom salts or Glauber's salts, one-half ounce in one-half pint of water. 4. Olive oil. 5. Inhalations of nitrite of amyl.

Caustic Potash and Caustic Soda.—1. Vinegar and water, lemon or orange juice. 2. Olive oil freely. 3. Demulcent drinks.

Chromic Acid.—1. Emetics. 2. Stomach tube. 3. Chalk and milk. 4. Demulcent drinks.

Cocain.—1. Inhalations of nitrite of amyl. 2. Stimulants. 3. Hypodermic injection of ether.

Copper (Sulphate of).—1. Stomach tube. 2. Emetics. 3. Milk and eggs *ad lib.*

Ethyl Chlorid.—1. Fresh air. 2. Stimulants. 3. Artificial respiration.

Hydrochloric, Nitric and Sulphuric Acid.—1. Soap and water. 2. Any alkali. 3. Olive oil. 4. Milk and eggs. 5. Hypodermic injections of morphin (stomach pump not to be used).

Iodin.—1. Stomach tube. 2. Emetics. 3. Starch and water. 4. Inhalations of nitrite of amyl.

Nitrite of silver.—1. Common salt and water freely. 2. Emetics. 3. Demulcents.

Nitrite of Amyl.—1. Fresh air. 2. Recumbent position. 3. Artificial respiration.

Opium.—1. Stomach tube. 2. Emetics. 3. Keep patient moving about. 4. Cold douches. 5. Inhalations of nitrite of amyl. 6. Artificial respiration.

Oxalic Acid.—1. Alkalies, such as chalk, lime of whiting. 2. Castor oil.

Perchloride of Mercury.—1. Stomach tube. 2. Emetics. 3. White of egg (unboiled). 4. Stimulants.

ANESTHETICS. Nitrous Oxid Gas.—1. Pull the tongue forward. 2. Fresh air. 3. Nitrite of amyl. 4. Artificial respiration.

Ether.—Leave responsibility with anesthetist.

Chloroform.—Never allow it to be given for tooth extraction. If inhaled.—1. Pull tongue forward. 2. Fresh air. 3. Flap chest and face with end of wet towel. 4. Artificial respiration. 5. Invert patient. 6. Nitrite of amyl. If swallowed.—1. Stomach tube. 2. Emetics. 3. Nitrite of amyl. 4. Rouse patient.

HANDY EMETICS. 1. Common salt.—One tablespoonful in half a pint of tepid water. 2. Mustard.—Two tablespoonfuls in half a pint of tepid water. 3. Put finger in the throat or irritate fauces with a feather. —*British Journal Dental Science.*



## **The American Text-Book of Prosthetic Dentistry in Contributions by Eminent Authorities.**

Edited by CHARLES J. ESSIG, M.D., D.D.S.

Professor of Mechanical Dentistry and Metallurgy, Department of Dentistry, University of Pennsylvania, Philadelphia. Illustrated with Nine Hundred and Eighty Engravings. Philadelphia and New York: Lee Brothers & Co. Publishers, 1896.

### **PART IV.**

**Chapter by  
Doctor  
Grant Molyneaux.**

The failure of an artificial denture to give proper satisfaction to the patient is more frequently caused by the dentist finishing his case from an imperfect occlusion than from any other reason.

Dr. Molyneaux's chapter on "The Bite" or occlusion is a very comprehensive exposition of almost everything that can be said on this subject. While its carefully worded rules and anatomical reproductions make it of especial value to students, the old practitioner will be able to glean many instructive points.

All the ordinary methods of taking "bites" are minutely described and illustrated. Especial attention is given to Dr. Bonwill's "anatomical articulator" and to the valuable matter contained in his article on "The Geometrical and Mechanical Laws of the Articulation of the Human Teeth." The writer after devoting considerable time to the valuable ideas first introduced by Dr. Bonwill shows where they can be improved upon, especially endorsing the new articulator of Dr. W. E. Walker, of Pass Christian, Miss.

Attention is very pointedly drawn to the errors liable to arise in depending on wax bite plates, due to the softening and spreading of the wax.

In discussing the difficulties attendant upon taking the bite of people who have been without teeth for a number of years, attention is called to what appears a very valuable apparatus for fixing the condylers of the lower jaw in the glenoid fossa, so as to make the bite positively correct. This is the invention of Dr. Garretson, of Iowa, and is illustrated as well as described. We can not agree with the statement that "in marked

protrusion of the lower jaw where the natural teeth close outside of the upper, and when this condition has existed up to middle life with natural teeth, a correction of the facial expression with artificial teeth should not be attempted."

**Chapters by  
Drs. Ambler Tees  
and W. W. Evans.**

Dr. Ambler Tees gives a very instructive chapter on "Continuous-Gum Dentures." The point demanding special notice is the carefully detailed directions for attending to a coke furnace, with which he is undoubtedly especially familiar.

Dr. W. W. Evans, who is world-famed for his ability in constructing celluloid plates, has written the chapter on "Celluloid and Zylonite." The latter term is used for a more improved form of celluloid. The chapter gives minute directions for working the material, together with a strong plea for its more general use. There is nothing new in the chapters, the illustrations being in fact quite antique by this time.

**Chapters by  
Drs. H. B. Thompson  
and R. Ottolengui.**

Dr. Alton Howard Thompson contributes a short chapter on "The Temperaments and the Temperamental Characteristics of the Teeth in Relation to Dental Prosthesis." Although this chapter does not cover many pages, it contains much of value to the scientific practitioner. There is a strong plea made for the careful study of the temperament of the patient before choosing and setting up porcelain substitutes for the lost teeth, in order that the teeth chosen, may conform in size, shape, color, texture, enamel, articulation, etc., with what would be suitable for such a temperament. In this conjunction there are given five valuable tables on temperament.

The final chapter is devoted to "Palatal Mechanism" and is written by Dr. Rodigues Ottolengui.

The writer's association with Dr. Norman W. Kingsley has given him opportunity to acquire a knowledge of the mechanism most beneficial in the treatment of cleft palate. The chapter is consequently written with the ease and fluency, for which Dr. Ottolengui is noted, especially when he is so thoroughly familiar with his subject. He gives to Dr. Kingsley the well-merited credit for the introduction of the artificial velum. The chapter is very instructive, the writer drawing freely from a large collection of cases, for the purpose of illustrating the various points presented. The illustrations are without exception, the finest in the volume, and have the merit of never having appeared before in print.



## **Southern Dental Association.**

COMMITTEE ON CATAPHORESIS.

The Cataphoresis Committee of the Southern Dental Association desires to present the subject to its fullest extent at the coming meeting, to be held at Old Point Comfort, and with that end in view does hereby invite any member of the profession who would like to clinic before the association, or has anything new in this line to communicate with me.

Manufacturers of appliances of any kind for use in this process are also invited to correspond with me, as our committee will have charge of the display of all apparatus pertaining to the subject and is desirous of presenting everything that is known upon this subject.

This communication is particularly addressed to each and every member of both the Southern and the American Associations, and it is hoped will obtain numerous replies.

Very respectfully,

C. EDMUND KELLS, Jr., Chairman,  
Medical Bldg., New Orleans.

## **North Carolina State Dental Society**

The twenty-third annual meeting of the North Carolina State Dental Society will be held at Charlotte, N. C., May 12th, 13th and 14th, 1897. An interesting programme is being prepared, and a most cordial invitation is extended to all members of the profession in good standing, and especially do we invite those from contiguous States, Virginia, South Carolina, Georgia and Tennessee.

The State Board of Dental Examiners will meet at the same place on Tuesday, the 11th of May, for the examination of those desiring licence to practice dentistry in this State.

G. W. BANNER, D.D.S., Secy.

### **Illinois State Dental Society.**

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The thirty-third annual meeting of the Illinois State Dental Society will be held at Peoria, May 11 to 14, inclusive, 1897. Members are urgently requested to be present. The profession, generally, is cordially invited. A reduced rate of one fare and a third has been granted from all points within the State.

LOUIS OTTOFY, Secy.,  
Masonic Temple, Chicago.

#### PRELIMINARY PROGRAMME.

President's Address. Dr. C. R. Taylor.

Report of the Committee on Dental Art and Invention. Dr. J. E. W. Harlan.

Report of the Committee on Dental Art and Invention. Dr. J. E. Keefe.

Pyorrhoea Alveolaris. Dr. J. W. Wassall. Discussion to be opened by Dr. A. W. Harlan.

Classification of Cavities and Rules Governing their Preparation. Dr. W. E. Harper.

Dr. E. H. Allen. Subject to be announced.

Diffusibility of Coagulants in Dentine. Dr. E. Lawley York.

How Shall We Best Insert a Gold Filling? Dr. Arthur G. Smith.  
Discussion opened by Dr. C. N. Johnson.

Dr. C. S. Case. Subject to be announced.

Be a—Man. Dr. A. H. Peck.

Anchoring Large Contour Fillings in Incisors. Dr. L. W. Skidmore.

Report of the Supervisor of Clinics. Dr. T. W. Pritchett.

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### **Alabama Dental Association.**

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The Alabama Dental Association will meet in Annual Convention in Birmingham, April 13th to 16th inclusive. No efforts have been spared to make this a memorable event in the history of the society. All members of the profession are cordially invited to attend.

The State Board of Examiners will meet at the same time and place, and all who desire to enter upon the practice of dentistry in Alabama are notified to present themselves for examination.

J. H. CROSSLAND, Secretary.

## Dental Society State of New York.

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The twenty-ninth annual meeting of this society will be held in Albany, May 12th and 13th, at which time the following programme will be presented:

President's Annual Address, H. J. Burkhart, D.D.S.

Report of the Correspondent, R. Ottolengui, M.D.S.

Report of the Committee on Practice, A. R. Starr, D.D.S.

"Amalgam Fillings, with a Practical Demonstration," G. V. Black, M.D., D.D.S., Sc. D., Jacksonville, Ill.

"Dental Organizations," James Truman, D.D.S., Philadelphia.

"Irregularities of the Teeth and their Correction," J. N. Farrar, M.D., D.D.S., New York.

"Cataphoresis," H. W. Gillett, D.M.D., Newport, R. I.

Subject to be announced, B. Holly Smith, M.D., D.D.S., Baltimore.

Members of the profession are fraternally invited to attend.

C. S. BUTLER, D.D.S.,  
Secy., Buffalo.

H. J. BURKHARDT, D.D.S.,  
Pres., Batavia.

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## Seventh District Dental Society.

The twenty-ninth Annual Meeting of the Seventh District Dental Society of the State of New York will be held at Rochester, April 27th and 28th.

### PROGRAMME.

1. President's Annual Address.—Dr. B. S. Hert, Rochester.
2. Antiseptics and Germicides.—Dr. Frank A. Sibley, Rochester.
3. What Shall We Do to Increase the Attendance of Our Society Meetings?—Dr. F. A. Greene, Geneva.
4. Practical Hints.—Dr. F. W. Proseus, Rochester.
5. Wherein Does a Country Dentist Differ from a City Dentist?—Dr. James Dennison, Waterloo.
6. Character as Expressed by the Maxillae and Teeth.—Dr. J. Wright Beach, Buffalo.
7. Dental Ethics.—Dr. H. S. Miller, Rochester.
8. Preparatory Work in Artificial Dentures.—Dr. J. F. Knapp, Geneva.
9. A Talk on Cataphoresis.—Dr. R. H. Hofheinz, Rochester.
10. The Chemico-Metallic Method of Filling Roots.—Dr. F. H. Lee Auburn.

**Iowa State Dental Society.**

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The meeting of the Iowa State Dental Society will be held in Des Moines, May 4th to 7th inclusive.

W. G. CLARK, Secretary.

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**Mississippi State Board of Dental Examiners.**

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The Mississippi State Board of Dental Examiners holds its annual meeting at Jackson, Miss., on the first Tuesday in April.

All applicants desiring permanent license to practice dentistry in this State are required to appear before the Board on the first Tuesday in April for examination.

G. B. CLEMENT, D.D.S., Pres.

L. G. NISBET, D.D.S., Secy.

Jackson, Miss., April 9th, 1896.

